# the Eagle

# PAINTERS' MANUAL

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EAGLE
1843 EP 1943
PICHER

**THE EAGLE-PICHER LEAD COMPANY**
GENERAL OFFICES • AMERICAN BUILDING
CINCINNATI, OHIO

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# Preface

THIS book is being printed at a time when war emergency restrictions and substitutions necessitate frequent changes in painting formulas. Because these changes are taking place so rapidly, we have confined the formulas on the following pages to standard, practical peacetime formulas, giving the ultimate in painting durability and economy. For best results, you should adhere as closely as practicable to these formulas.

Now, more than ever, with Property Conservation the order of the day, Eagle White Lead is the best protection you can give your customers. It is pure lead carbonate with finest linseed oil and a small amount of gum turpentine. Eagle White Lead offers the craftsman a painting material so versatile it can be used for virtually any exterior or interior decoration.

Eagle Flatting Oil and Eagle Lead Reducing Oil are ideally used in compensating for the present restricted supply of linseed oil when preparing white lead to painting consistency. The use of either of these specially formulated oils adds *extra* durability and beauty to Eagle White Lead's already recognized merit.

## CHAPTER I

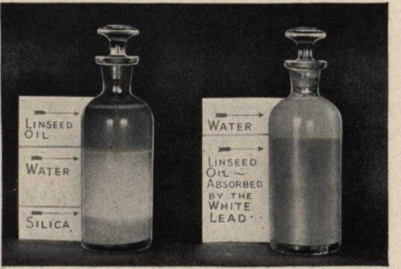
# Facts About Paint

## WHAT PAINT IS

**Paint** is generally defined as a mixture of a pigment, in the form of a very fine powder, with a liquid element called a vehicle, or binder, of such a nature that the mixture can be spread out in a thin coating that will dry hard. Excluding the special paints known as enamels, paint is usually considered to require a so-called drying oil as the liquid part or vehicle. This is an oil which does not become dry by evaporation, but by chemical combination with the oxygen of the air.

**The Vehicle . . .** Very few liquids are known which are suitable for this purpose. Linseed oil is by far the most important drying oil known, although two or three similar vegetable oils give some promise. Linseed oil binds the paint particles together. For this reason, it is important that a high quality vehicle be used.

**The Pigment . . .** The armor of the painted surface is the pigment, or powder particles, which the binder holds together. Many pigments are in use today, such as carbon for black paint, earth pigments for certain yellows and browns, and various chemical compounds for other yellows, blues, reds, etc. Also, we have white pigments, for service not only where white paint is desired, but as a base for the delicate tints.



*Mixing linseed oil, water and white lead in a glass shows the strong affinity linseed oil has for white lead—illustrates one of the reasons why white lead makes a superior paint*

The most popular white pigments are white lead (basic lead carbonate or basic lead sulphate), zinc oxide, zinc sulphide, lithopone (a combination of zinc sulphide and barium sulphate), and titanium pigments.

## FEATURES OF EAGLE WHITE LEAD

**Eagle White Lead Forms Extremely Durable Paint Film . . .** Since white lead first came into popular usage, hundreds of years ago, painters have had an expression—"White lead lasts!" Thousands of Eagle white lead jobs—standing up for years where other paints have failed—bear witness to the truth of that old saying.

The principal reason for the outstanding durability of white lead is its chemical activity with respect to linseed oil. White lead actually *combines* with linseed oil, forming a compound called a linoleate, which firmly binds the pigment and the vehicle. Inert (chemically inactive) pigments do not combine with the oil, but are merely held in suspension. The linseed oil on a chemically *active* pigment, such as white lead, acts as oil does on a dry surface—it spreads. The oil on a chemically *inactive* pigment corresponds to oil on a wet surface—it tends to pull away. If a paint is made of an inert pigment, the oil pulls away from the pigment when the film dries, leaving small pockets. This causes a porous film which admits water and air, and as a result, the film breaks down long before a white lead film does.

It is easy to demonstrate the affinity of white lead for oil by a simple test. Mix a little dry white lead with water in a test tube or bottle. Add a small amount of linseed oil, and shake it well. Water is heavier than oil, so you would expect it to go to the bottom. Instead, it comes to the top, because the white lead combines with the oil and drags it to the bottom, throwing off the water. If water and linseed oil are mixed together without white lead, the oil naturally comes to the top. (See photograph on Page 3.)

Another reason for the durability of a white lead film is that it is tough, yet elastic and pliable. It "gives" with the surface expansions and contractions, so that it does not crack. Many other pigments form a hard, brittle film, which cracks easily with normal surface movement.

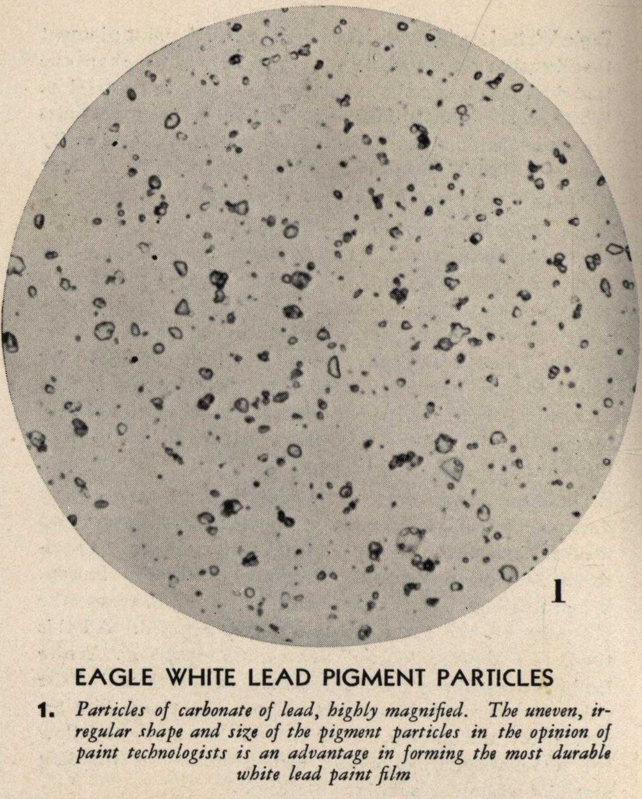
**Eagle White Lead Covers More Surface . . .** A paint pigment that brushes on smoothly covers more surface than one that doesn't, and, at the same time, gives better protection. White lead brushes on smoothly. The fine pigment particles are suspended in oil so uniformly that the material is easily applied without undue ridges or "thin spots." Greater coverage—less paint per job—is the result.

**Eagle White Lead Has Great Hiding Power . . .** It hides better for two reasons: (1) The pigment particles, being irregular in size and shape like sand and gravel in concrete, cling together forming a solid mass of pigment that completely covers the surface. (2) White lead has a high refractive index; technically, this means that the light rays which hit the pigment particles are scattered in such a manner that the surface under the film is completely hidden. To the painter, this means that white lead forms a film which is remarkably opaque.

**Eagle Wears Down Smoothly . . .** White lead paint wears down smoothly by a gradual chalking process, leaving an ideal surface for repainting when this finally becomes necessary. Ordinary or "cheap" paints may crack or peel away. When this happens, it is necessary to burn and scrape the old paint off the surface before new is applied. All this tends to make the "cheap" paint more expensive. White lead never cracks or peels unless dampness gets behind the paint film through the construction. The tough film remains soft and pliable. Thus, it has the ability to follow the alternate shrinkage and expansion of the building material without cracking or peeling.

**Other Important Advantages of Eagle White Lead . . .** In addition to its remarkable durability, coverage, hiding power and wearing qualities, white lead has many more important advantages. It can be readily tinted to any color, and it is extremely easy to brush.

Eagle White Lead costs less, any way you figure it. It costs less per gallon when mixed ready to apply than many prepared paints of inferior quality. Less labor is required because it goes on easily and smoothly. And its durability makes it cost less per square foot per year of service.



## EAGLE WHITE LEAD PIGMENT PARTICLES

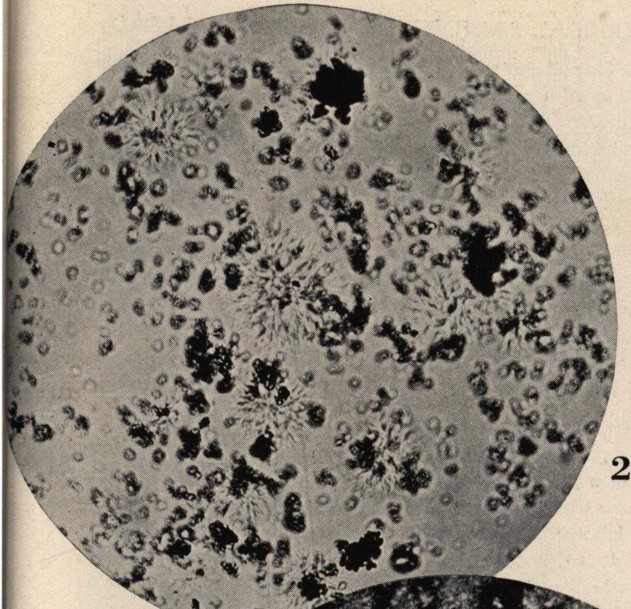
**1.** *Particles of carbonate of lead, highly magnified. The uneven, irregular shape and size of the pigment particles in the opinion of paint technologists is an advantage in forming the most durable white lead paint film*

## EAGLE WHITE LEAD; A CHEMICAL PIGMENT

**2.** *When carbonate of lead is mixed with linseed oil, a physical and chemical reaction takes place. After a few days the white lead particles "blossom" in the linseed oil, making an interlocking mass of carbonate of lead and linseed oil. This photograph shows this "blossoming" effect as it appears when highly magnified.*

## EAGLE WHITE LEAD "ANCHORS" TO SURFACE

**3.** *The union of white lead pigment particles and oil forms a paint that seeps into the pores of the surface it is applied to, becoming virtually "part and parcel" of it. The white lead paint film stays tough, yet pliable and elastic, does not crack when the surface stretches or shrinks.*



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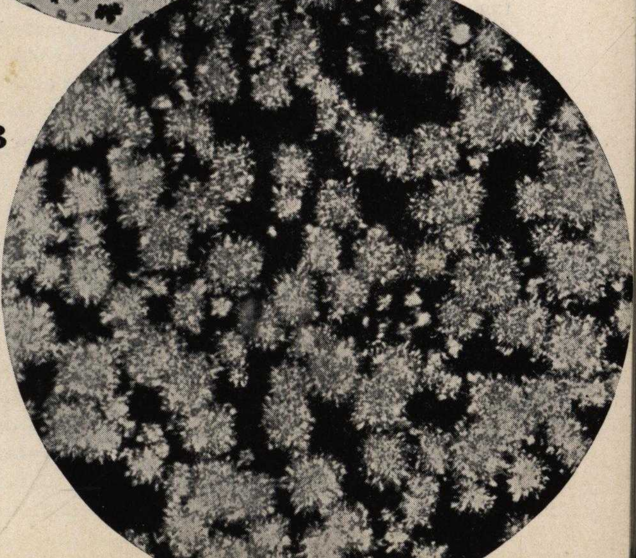

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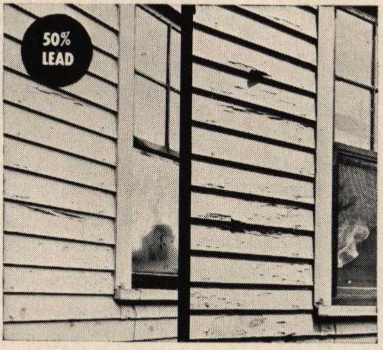
## CRITICAL PAINT BUYERS PREFER WHITE LEAD

The United States Government specifies either 100% white lead in oil or a minimum of 60% of white lead in prepared paints, for all its outside painting work. In a recent survey conducted by a disinterested organization, it was found that 68% of all architects specify pure white lead. 85% of all master painters who own their own homes paint them with white lead! It is an outstanding testimonial to the superiority of white lead that such a huge majority of these men who really know paint used white lead on *their own homes,* where nothing could influence their choice except their own experience.

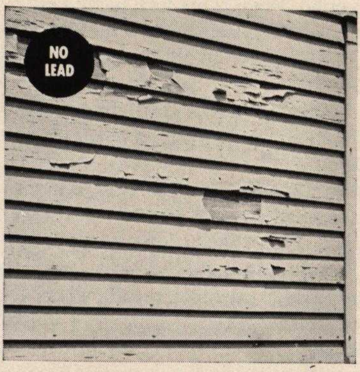
## TESTING PAINT FOR WHITE LEAD CONTENT

There are times when a painter should know whether paint in a pot or on a surface is pure white lead. If he is to repaint over a paint surface which is cracked and scaled, he must know whether that failure is the start of general cracking which will be speeded up by the shrinkage of new paint when it dries; or whether the old paint is pure white lead, in which case the scaling is probably caused by moisture or faulty construction. In the first case, the scaling is a signal for the painter to be on his guard against guaranteeing the job against future cracking and scaling. The old surface will probably have to be burned and scraped away before repainting. In the second case, he should advise the owner to repair the faulty construction before repainting.

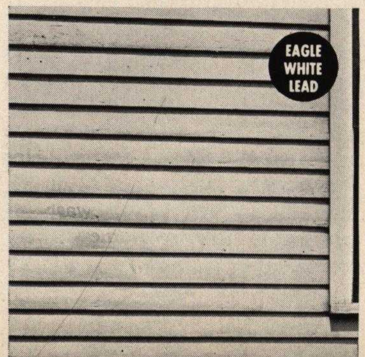
**Simple Test For White Lead . . .** Scrape off about a teaspoonful of the old paint and put it on a block of charcoal. Blow the blue flame from an alcohol lamp or blow-torch on the paint scrapings, until they are completely burned. If the paint is pure white lead, you will recover a little bead of bright lead metal. If you get a gray or yellow ash, the old paint may have some lead in it but there are also inerts or other pigments because pure white lead leaves nothing but metallic lead when it is "reduced" on charcoal in this manner. Paint skins from old pots may also be tested in this way.



*50% Lead After 18 and 24 Months' Service*



*No Lead After Two Years' Service*



*Eagle White Lead After Two Years' Service*

## EAGLE WHITE LEAD IN OIL IS AVAILABLE IN TWO FORMS

Eagle White Lead is available in two consistencies, heavy and soft pastes. Either one can be used with equal satisfaction for exterior or interior work. The main difference between the two lies in the fact that soft paste contains a small amount of turpentine which is added at the factory by a special grinding process. Part of the work of thinning has already been done when you buy soft paste. The choice between the two is entirely a matter of the painter's individual preference.

The heavy paste is packed in one and five-pound cans, and in twelve-and-one-half, twenty-five, fifty, and one-hundred pound kegs. The soft paste comes in the same sizes with the exception of the one and five-pound cans.

## TWO COMPANION PRODUCTS FOR USE WITH EAGLE WHITE LEAD

**Eagle Flatting Oil . . .** Here is the product to use with Eagle White Lead to obtain a flat, washable finish. Ideal for stippling. Flows easily, smoothly, helping to prevent unsightly brushmarks, flashes and laps. Is practically odorless and brings excellent results when used in place of turpentine in either interior or exterior white lead paint—Eagle Flatting Oil reinforces the oil vehicle and helps wearing and binding qualities of the paint. Has high spreading rate . . . may be also used for glazing and blending.

**Eagle Lead Reducing Oil . . .** should be used with Eagle White Lead in mixing paint for porous surfaces such as brick, stucco, stone, concrete, plaster, wallboard and woodwork. Priming coat paint made from this oil and Eagle White Lead helps fill the pores of these surfaces, helps stop suction and keep out moisture—Eagle Lead Reducing Oil speeds up drying time, giving a velvety flat, washable finish without any brush marks. Also recommended for two-coat work on new wood. (See page 25.)

## CHAPTER 2

# Exterior Wood Painting

In painting an exterior, perhaps the first consideration would be the selection of a suitable color scheme. Chapter 8 of this book is devoted to coloring paint and paint styling. Many practical exterior schemes are suggested.

This chapter deals entirely with the mechanics of exterior wood painting, without consideration for the artistic viewpoint. Note that the various points are discussed in the order in which they should be considered by the painter.

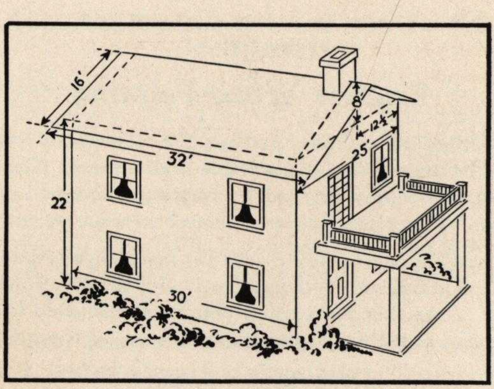
## HOW MUCH PAINT?

In estimating the amount of paint required for a job, the first step is to calculate the area to be covered. In the case of a complete exterior job, the area is easily found by measuring the distance around the house, and multiplying it by the height (not including gable). This will give the total side area of the house, not including the gables; the gable area is calculated by multiplying the height of the triangle or gable by half its width.

To make the method clearer, the area of the house in the accompanying picture has been calculated:

Total side area (Distance around × Height)
110′×22′ =2420 Square Feet
One Gable (Height × ½ Width)
8′×12½′= 100 Square Feet
2′×100′ = 200 Square Feet, area two gables
Porch (Length × Width)
25′×7′ = 175 Square Feet, area of ceiling
2′×175′ = 350 Square Feet, area ceiling and floor.
Total Area.....2970 Square Feet

Once these figures have been obtained, the number of gallons of white lead required for the job is calculated by dividing the total area by the number of square feet a



*Illustrating the simple method for estimating the amount of paint required for a job*

gallon of paint will cover. The coverage depends upon the condition of the surface and its porosity, as well as the skill of the painter. Generally, the priming coat paint will cover about 650 square feet per gallon, while the second and third coats cover 700 to 750 square feet per gallon. In case old work is being painted, figure 700 square feet per gallon for each coat.

It is now necessary to find the number of gallons of paint that can be produced from 100 pounds of white lead. This depends on the formula you follow. Just remember, when mixing the paint, that it is better to have a little too much than not enough. Any left over paint can be used to paint roof gutters, cellar stairs, or other odd jobs where color is not a primary consideration, or for priming porch floors.

**Brief Calculation of Pounds White Lead Needed . . .** To find the *approximate* amount of white lead needed, the following method may be used for quick calculation:

First: Find area to be painted.

Second: Divide area by 700, the average number of square feet a gallon will cover. This will give the gallons of paint required.

Third: Divide the number of gallons by six, and multiply the result by 100. This will give the pounds of white lead required for each coat.

Fourth: Multiply the pounds needed for each coat by the number of coats; this gives the total pounds of white lead required for the job.

## CONDITION OF SURFACE

**Painting Weather . . .** Weather is perhaps the most important factor to watch in doing outside painting. No painting should be undertaken when the weather is damp, foggy or frosty, or when a sudden temperature drop is expected. Painting on a wet surface often results in blistering and peeling or early chalking. (See Page 68, 69). Sudden temperature drops may cause the paint film to wrinkle, producing loss of gloss.

**Fall and Winter Painting . . .** During fall and winter, the best way to avoid painting over a moisture film is to start painting late, about nine or ten o'clock in the morning, and stop about 4 o'clock, eliminating the usual lunch hour if necessary. Coats should be given more time to dry. It is unwise to use an excess of drier containing a large amount of rosin. This may harden the film rapidly enough to keep moisture from settling on it, but it may also cause premature failure. The best practice is to use a little less oil and make up the deficiency in volume with turpentine.

**Insects In Outside Paint . . .** Gnats, flies, and other small insects discolor fresh outside paint in some sections of the country during certain seasons. Usually the most practical way to avoid repainting is to stop work until the swarms have passed. Some painters, however, have successfully avoided this trouble by putting a teaspoonful of oil of pennyroyal or citronella in each pot of paint.

**Preparation of Exterior Wood for Painting . . .** New exterior work requires little or no preparation except dusting or scraping off any dirt or other foreign matter which may have adhered to the wood. All knots and sap wood should be coated with shellac after the priming coat is dry.

Old exterior wood surfaces need only be dusted off, providing they are in good condition. Cracks, crevices, nail holes, knots or dents must be puttied to prevent water from seeping in behind the paint film. On repaint work, the putty should be applied after the first coat of paint has dried and hardened; on new work, the putty should be applied after the priming coat has dried and hardened.

To make a high quality putty, use approximately equal parts by weight of Eagle Soft Paste White Lead and fine bolted whiting. Mix the two materials together, then knead the mixture by hand. With a wooden mallet, beat the putty until the proper consistency is obtained. This type of putty is excellent for glazing as well as for repairing surface defects.

If loose or scaling paint is present, it must be scraped or wire-brushed off completely; if the old paint is in extremely bad condition, the best method is to burn it off with a blow-torch. No paint must be left on which is not perfectly anchored to the surface, for the pull exerted by the drying of the new paint may loosen it up, and in a short time cause the peeling and scaling process to begin again.

## PAINT MIXING

Careful mixing is one of the chief factors in getting a good paint. Follow mixing instructions carefully.

Mixing paint from Eagle Soft Paste White Lead requires only a few minutes. Before removing it from the keg, stir the paste until the free oil is thoroughly incorporated with the pigment. Then pour the paste into a clean mixing pail or tub and gradually add the linseed oil, turpentine, and drier. Do not add the drier or all the turpentine until just before application of the paint.

Eagle Heavy Paste is mixed in exactly the same way, except that the linseed oil must be added in small amounts, mixing each portion well into the paste until all the oil called for by the formula has been absorbed.

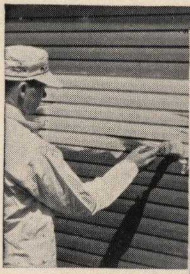
**Tinting . . .** The color, if any, is added to the white lead after the linseed oil, but before the turpentine and drier. If fluid colors are not used, put the tinting color in a small container and add turpentine slowly, taking care to beat up the mixture until it becomes a creamy smooth paste. By adding turpentine in small amounts, the color can be broken up more evenly, so that no small lumps will remain to mar an otherwise perfect paint job. It is a good plan to gray off the tinting color with white before adding it to the white lead. If the color is imperfectly broken up after the paint is strained, it may be that the whole batch is several shades darker than the desired shade. More white may be added to bring back the color to the right point. Caution: in tinting, especially flat paints, it should be remembered that colors always change depth when they dry.

**Straining . . .** After exterior paint is thoroughly mixed, it should be strained by pouring it through a wire screen. Interior paint should be strained through two or three layers of cheesecloth. The straining operation removes all lumps and "skins"—makes the paint easier to brush out to a smooth finish.

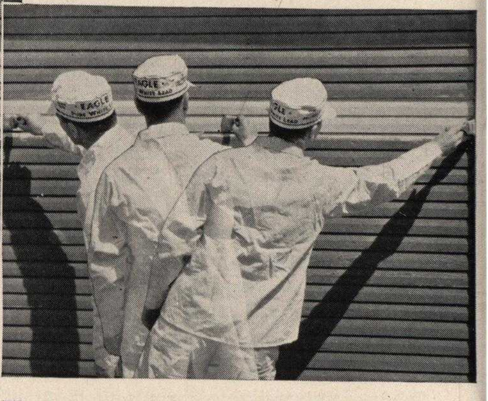
**Mix Paint Twenty-Four Hours Before Using . . .** It is well to allow the paint to stand for about a day after mixing. This gives the pigment time to absorb all the oil and become thoroughly incorporated. Do not add the drier or all the turpentine until you are ready to paint. Keep the main batch of paint covered when not in use.

## HOW MANY COATS?

It is a safe policy to always use three coats for new wood and at least two coats for painted surfaces in good condition. In recent years, consideration has been given to the price of a gallon of paint and to the lowest contract price submitted for a job. Consequently, it is more or less common practice to apply only two coats of paint on new buildings and one coat on old surfaces. If the same amount of pigment is applied in two coats as would normally result from three coats, a durable job can be obtained. Obviously, when one coat is omitted, the paint must be applied in thicker coats and brushed more heavily, giving about the same thickness of film as would ordinarily be applied in two coats. The safest practice is to use two coats on old work and three on new. (See Chapter 3, Page 25.)



*Paint should never be applied with short, jabbing strokes and then laid off to finish before next brush load is taken up*



*The long, sweeping stroke is unquestionably the correct method of applying outside paint. It leaves an unbroken film of paint that is extremely durable.*

## CORRECT BRUSHING

Hold a small pot of paint in the left hand. This will eliminate loss of time in stooping over to fill the brush, and will save your back. Dip the brush and carry the load to the surface, spreading it only enough to empty the brush. Repeat this a half dozen or more times, distributing the load over a surface about two feet wide and four to six feet long, depending upon your reach. Now spread out the paint with long strokes, and lay it off with the fine flag ends of the brush. Use long, continuous strokes directed with the grain of the wood, from one end of the stretch to the other.

**Making the Paint Adhere . . .** Good adhesion is an inherent quality of white lead paint, but any paint must be placed in intimate contact with the wood to get the best results. The surface tension and moisture film of the wood must be broken down by vigorous brushing, so that the oil penetrates the wood cells, as illustrated in the accompanying photographs. Flowing on exterior paint, or applying it in short jabbing strokes, will not give the strongest adhesion. To make the paint adhere, first be sure that the surface is clean, then use a vigorous brush action.

## DRYING TIME BETWEEN COATS

Allow plenty of time for each coat to dry. If one coat is applied before the last coat is thoroughly dried, alligatoring or checking may result. (See Page 68). Outside work should be allowed to dry at least three days; a week is even better.

Sometimes, if the paint is improperly formulated, the undercoats will get hard and glossy when allowed to dry too long. In such cases, there may be trouble with the finishing coats creeping, crawling, sagging, or wrinkling. When a mistake of this nature is made in the undercoats and they dry glossy, the only solution is to cut the gloss with benzine or use less oil and more turpentine in the finishing coats.

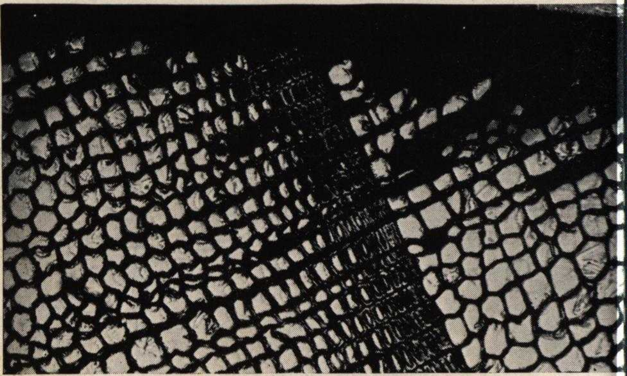
**North Wall Gloss . . .** Creeping or crawling on paint over a glossy surface is a frequent cause of trouble, and can be avoided by examining the various walls of the building for gloss. Where the old paint still has considerable gloss, generally on the north wall, add considerably more turpentine than would be used if the paint were dried out and chalky. If crawling is anticipated, wash over the glossy parts with gasoline or benzine immediately before painting; never add ammonia to overcome this trouble.

## PRIMING COAT

Always bear in mind that the priming coat is the foundation of the paint film. Should it be incorrectly mixed or applied, it may be the cause of trouble until the entire film is removed. So-called special primers are unnecessary. A priming coat made of Eagle White Lead is *still superior regardless of finish coats*. Use the formulas in this book, which are the result of years of practical decorators' experience. Brush the paint carefully into the wood and lay it off in an even film.

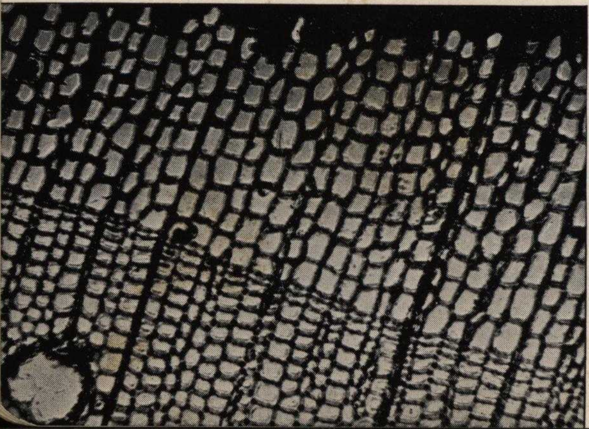
## WHITE LEAD ON WESTERN RED CEDAR

*Cross section of Western Red Cedar Siding showing anchorage of white lead paint. Note the small band of "summer" wood compared with "spring" wood. The black streaks below the upper third of the paint film are linseed oil and not pigment. There is absolutely no penetration of pigments into wood below the cell structure cut open by the planer, as pigment particles cannot get through the bordered pits. The oils, however, are easily absorbed by the cell walls. Quite often, in fact, they completely fill the cells, as is partly shown by the picture.*



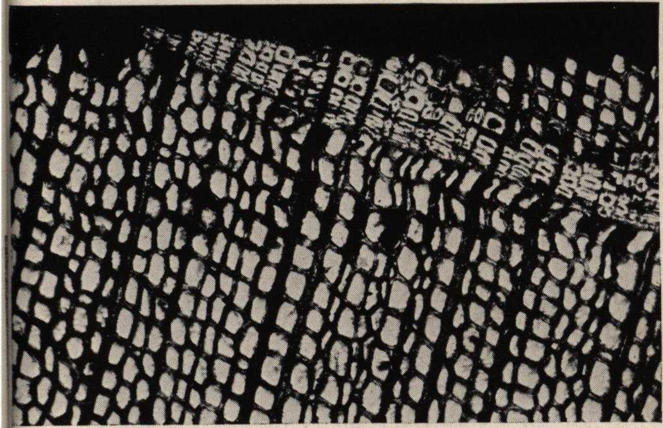
## WHITE LEAD ON PONDEROSA WHITE PINE

*Cross section of Ponderosa White Pine, with white lead film. Note small difference in the "spring" wood compared with "summer". A cross section of Sugar or Idaho White Pine would be similar.*



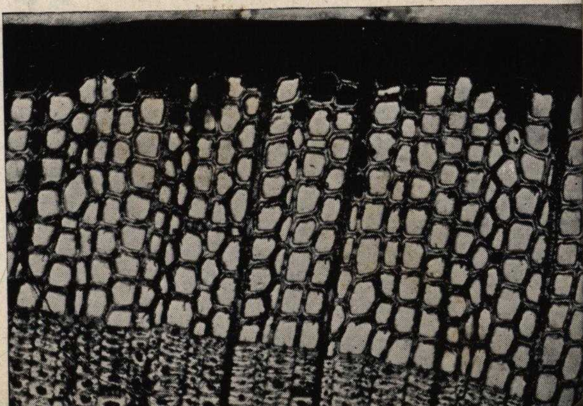
## WHITE LEAD ON CYPRESS

*Cross section of a piece of Cypress showing white lead in oil paint film at top edge. Note the anchorage of the paint down in the broken cell walls*



## WHITE LEAD ON DOUGLAS FIR

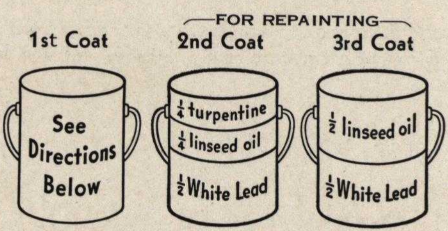
*Cross section of Douglas Fir showing lead in oil paint film. Note the oil filling the cells, some of which has been sucked down into the medullary rays. These rays are canals that lead from the center of the tree to the outer part of a tree. In finished lumber, they pull the oil down into the wood past several annual rings*



# STANDARD

## FORMULA

### FOR PAINTING NEW WOOD or for REPAINTING OLD WOOD



**Painting NEW Wood:** . . First prime with 3 parts Eagle White Lead, 4 parts linseed oil, 2 parts turpentine. Then follow proportions above for the 2nd and 3rd coat.

**Repainting OLD Wood:** Use only the 2nd and 3rd coats shown above.

**Drier . . .** *Boiled* linseed oil requires *no drier.* If raw linseed oil is used, add ¼ pint of drier for each gallon of paint mixed.

100 lbs. of Eagle White Lead, mixed according to the above finish coat instructions produces approximately 6½ gallons of long wearing paint. The empty container provides a handy measure with a capacity of about 3¼ gallons in the 100 pound size.

**Adjusting the Formulas . . .** These formulas are recommended by the Eagle-Picher Lead Company to fill exterior painting needs under average conditions, but at the same time, it is recognized that no formula can meet all requirements. However, white lead is readily adjustable to any conditions.

For instance, the more porous types of wood, such as cedar, redwood, and white pine often require more linseed oil to satisfy their porosity. Fir and yellow pine require less oil, but a little more drier to counteract the substances present which may retard drying. (See the photomicrographs on pages 18 and 19.) Old dried out paint also soaks up more linseed oil.

A simple rule is to add enough oil to the white lead so that laps between stretches are easily brushed out and become invisible.

## WOOD PORCH FLOORS

Exterior floors are painted in almost exactly the same manner as inside ones. (See Page 40–41.)

## CANVAS DECK FLOORS

Eagle White Lead, thinned with linseed oil, makes an excellent bedding for canvas covering over wooden decks or floors.

The first step, of course, is to prime the wooden deck using the following formula:

| | |
|---|---|
| Eagle Soft Paste White Lead . . . . . . . . . | 100 lbs. |
| Raw Linseed Oil . . . . . . . . . . . . . . . . . . . . | 3 gals. |
| Eagle Flatting Oil or Gum Turpentine . . | 2¼ gals. |
| Liquid Drier . . . . . . . . . . . . . . . . . . . . . . | 1 pt. |

After this priming coat is sufficiently dry, a white lead paste, mixed in the ratio of 2½ gals. of boiled linseed oil to 100 lbs. of Eagle White Lead, is applied rather heavily. Moisten the canvas thoroughly, and lay it on the wet paste paint, tacking the canvas securely in place. Care should be taken to stretch the canvas properly while it is being tacked in place. It is usually good practice to roll the canvas into place so that the underlying paste impregnates the canvas fibers.

Any excess white lead paste, coming through the coarser portions of the canvas, is then scraped from the surface. The deck covering must be thoroughly dry before applying the finish in accordance with formulas shown on page 41.

## WOOD SHINGLES

In painting new undipped wood shingles, where these are used for a house siding, the priming coat should be made exactly like the priming coat in the formulas for ordinary exterior wood work on Page 20. Use the following formula for a second coat, or first coat when repainting.

| | |
|---|---|
| Eagle Soft Paste White Lead | 100 lbs. |
| Pure raw linseed oil | 1½ to 2 gals. |
| Eagle Lead Reducing Oil | 1½ to 2 gals. |
| Total | 6⅛ to 7⅛ gals. of paint |
| Coverage (per gal.) | 600 sq. ft. |

The third coat is the same as the finishing coat on regular exterior wood for gloss. For flat finish mix white lead with equal parts of Eagle Lead Reducing Oil.

If only a small amount of paint is desired, see Chapter 11.

**Staining Wood Shingles . . .** Use one part Eagle Flatting Oil or turpentine with two parts boiled linseed oil. To obtain various colors, add any desired color in oil. A good gray may be made by adding 12½ lbs. of Soft Paste White Lead and a touch of lamp-black to one gallon of the oil mixture, and a good green by adding ¾ pint of chromium oxide to a gallon of the mixture.

Before painting over shingles, it is wise to find out first whether the surface has been previously stained with creosote. Creosote stains are apt to bleed through a light colored paint. Coat a small area with white lead first, to make sure that bleeding does not occur. If the test portion discolors, the shingles must either be re-stained or painted a dark color on which discoloration will not show up.

# Asbestos Cement Shingles and Siding

Good paint renews the appearance of asbestos shingles and siding, and helps seal out moisture and dampness. If left unpainted, the following defects will be observed on asbestos cement siding:

(a) Dirt and soot will soon become embedded in the rough, porous surface to such an extent that they cannot be removed properly because of the depth of the pores. This results in a very unsightly condition.

(b) Under certain circumstances mildew will grow within the pores, especially where vegetation is nearby. This is especially true in the far South where high moisture conditions prevail. The growth is usually first observed in the shaded areas under the eaves, and presents a badly mottled appearance.

(c) Owing to absorption of water, unpainted asbestos cement siding will become very badly mottled during rain storms. Water is very quickly and readily absorbed in very substantial amounts by this type of structure. Driving rain storms, such as those often experienced in certain localities of the country, will cause extremely bad spotting and dampness.

No special paint or procedure is necessary for painting these composition surfaces; it has been found that Eagle White Lead gives just as beautiful and durable a coating on this type of surface as on any other. The following formula may be used:

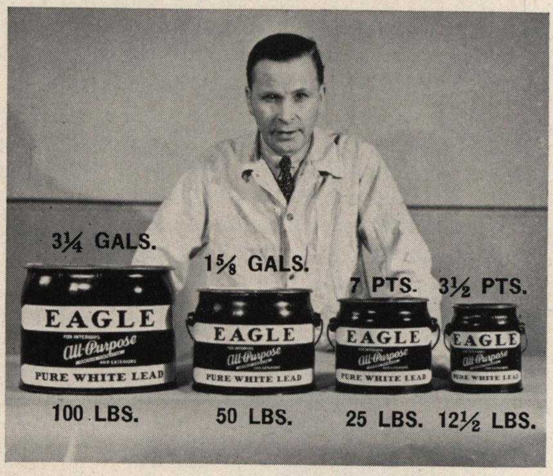
### FIRST COAT

| | |
|---|---|
| Eagle Soft Paste White Lead | 100 lbs. |
| Linseed Oil | 1½ to 2 gals. |
| Eagle Lead Reducing Oil | 1½ to 2 gals. |
| Total | 6⅛ to 7⅛ gals. of paint |
| Coverage (per gal.) | 400 sq. ft. |

## SECOND COAT (Flat)

| | |
|---|---|
| Eagle Soft Paste White Lead | 100 lbs. |
| Eagle Lead Reducing Oil | 3 gals. |
| Total | 6⅛ gals. of paint |
| Coverage (per gal.) | 600 sq. ft. |

## CONTENTS OF EAGLE WHITE LEAD KEGS



Painters buy Eagle White Lead not only because of its beauty and durability, but because they know that empty Eagle kegs make handy paint pots and accurate measuring containers. All Eagle kegs are made of heavy gauge steel with properly curved handles that don't come loose. There are no seams to weaken and pull away. Lids are easily opened and resealed. Craftsmen especially like the way the kegs hang straight from the ladder, reducing danger of tilting.

## CHAPTER 3

# Two Coat Painting

There's really nothing new about two coat painting on new wood. Old time painters used Eagle White Lead for two coat systems years ago. They knew it gave best results whenever they were obliged to get by without a third coat to meet competition.

Despite the superiority of the three coat system, the practice of two coat painting on new wood has steadily increased during recent years. The reasons underlying the growth of two coat work are quite understandable. Claims of some paint manufacturers have created a certain degree of public acceptance for the two coat system; F.H.A. and H.O.L.C. specifications have approved the method. As a result, good mechanics must occasionally abandon the three coat procedure they know is best, and adopt a different practice to meet competition.

Three coat work remains, and will doubtless continue to be the standard practice. But the master painter will find it wise to acquaint himself with the principles of *good two coat painting* so that he can insure maximum customer satisfaction whenever two coat work on new wood is necessary or expedient.

## PRO'S AND CON'S OF TWO COAT PAINTING

Theoretically, the two coat customer saves money represented by the labor cost on one coat; actually, he is apt to buy a shorter lived job. From the painter's viewpoint, two coat painting is even less attractive for he loses the labor of applying a third coat; and, unless he is careful to use materials of proved worth, risks his professional reputation.

The three coat job, therefore, has been established as standard practice because it gives the home-owner a lower cost per year of paint service and the painter a larger unit of sale.

Despite recent attempts to surround two coat painting systems with considerable mystery, good two coat work is comparatively easy to do. Success depends on just two principles: First, keep most of the oil in the paint film instead of allowing it to penetrate into the wood. Second, keep each coat thicker than in three coat work by more moderate brushing out. In short, two coat painting is simply an effort to obtain a film thickness with two coats of paint that will give the results ordinarily expected from three coats.

## 4 "MUSTS" FOR TWO COAT PRIMERS

Naturally, to achieve these objectives, special attention must be paid to the prime coat. Primers for two coat work on new wood require four distinct properties:

1. Controlled Penetration—To prevent most of the oil in the paint from sinking into the bare wood. Excessive penetration would rob the paint film of too much oil and leave it weak and thin.
2. Pigment Concentration—The ratio of the pigment to the non-volatile parts of the vehicle should be high if the paint is to wear satisfactorily.
3. Quick Drying—The first coat must dry rapidly to help check penetration and secure a thick film. Also, to insure thorough drying of the unusually thick coat.
4. Rate of Spread—The paint must be applied with more moderate brushing out, to obtain the proper film thickness for durability and good hiding.

Other desirable features might be added to this list, but the four mentioned are most essential. Without them, no paint could possibly prove satisfactory for two coat work. Significantly, these four factors are easily obtained with Eagle White Lead.

## EAGLE WHITE LEAD SIMPLIFIES TWO COAT PAINTING

Any good painter can mix a two coat paint of unexcelled quality with Eagle White Lead. It's as simple as mixing the familiar three coat formulas. The only important changes are more moderate brushing out and the use of a quick drying, non-penetrating oil such as Eagle Lead Reducing Oil (or a good spar varnish) in the primer.

Good hiding is achieved by using more white lead and less vehicle, then limiting the spreading rate to secure proper film thickness and durability.

Merely mix Eagle Pure White Lead with not more than an equal number of gallons of vehicle for both coats. By the use of driers and Eagle Lead Reducing Oil (or varnish) it can be made to dry quickly and stay on the surface instead of penetrating into the wood. That's all there is to mixing two coat paint with pure white lead.

Such an all lead paint has good brushing and hiding properties, combined with beauty and long life. It wears slowly without cracking or scaling and leaves an excellent surface for re-painting. In short, white lead meets the 4 "musts" for good two coat painting.

## TESTED MIXING FORMULAS

The following formulas demonstrate how white lead's unusual versatility makes it particularly adaptable for two coat painting on new wood.

### Priming or Sealing Coat

| | |
|---|---|
| Eagle Soft Paste White Lead | 100 lbs. |
| Eagle Lead Reducing Oil | 1½ gals. |
| *Polmerik Linseed Oil | 1½ gals. |
| Gum Turpentine | 1½ pts. |
| †Liquid Drier | ½ pt. |
| Total | 6½ gals. of paint |

### Finish or Second Coat

| | |
|---|---|
| Eagle Soft Paste White Lead | 100 lbs. |
| *Polmerik Raw Linseed Oil | 3 gals. |
| †Liquid Drier | 1 pt. |
| Total | 6¼ gals. of paint |

*Or any similar Linseed oil vehicle containing 10% Bodied Oil.
†If Polmerik Boiled Linseed Oil is used, reduce drier.

## HOW TO APPLY EAGLE WHITE LEAD PAINT FOR TWO COAT WORK

Spreading rate is important in all two coat painting. When applying white lead paint made by any of the above formulas, care should be taken to get the proper film thickness necessary for maximum durability. Apply the primer freely to four or five boards in the stretch. After painting the last board go back and lay off with one stroke, then allow to dry. The paint should be spread at the rate of not more than 450 square feet per gallon for the prime coat and 550 square feet per gallon for the finish coat. There is one precaution . . . to secure the desired film thickness do not use additional thinner.

## F. H. A. SPECIFICATIONS FOR 2-COAT PAINTING

Technical Circular No. 6 of the Federal Housing Administration permits the use of white lead for two-coat exterior painting on new work, instead of the conventional three-coat paint job, when mixed according to the following formulas:

### First Coat

| | | |
|---|---|---|
| Soft Paste White Lead | 100 | lbs. |
| Raw Linseed Oil | 1½ | gals. |
| Exterior Spar Varnish | ¾ | gal. |
| Turpentine | ½ | gal. |
| Liquid Drier | 1 | pt. |
| Raw Umber in Oil | ¼ | pt. |
| Total | 6 gals. of paint | |

### Second Coat

| | | |
|---|---|---|
| Soft Paste White Lead | 100 | lbs. |
| Raw Linseed Oil | 2⅔ | gals. |
| Turpentine | 3 | pts. |
| Liquid Drier | 1 | pt. |
| Total | 6⅛ gals. of paint | |

The above F. H. A. technical circular states, "In general, an adequate film thickness providing hiding and durability will be obtained when a properly designed paint for exterior use is spread at approximately 450 square feet per gallon for the prime coat and 550 square feet per gallon for the finish coat".

Technical circular No. 6 continues, "It is recognized, however, that some two-coat paint systems, acceptable under these provisions though equivalent to conventional three-coat paint jobs in respect to hiding, may not be equal to good three-coat work in durability, and as a result may have to be repainted sooner than would be the case if three coats were applied."

## CHAPTER 4

# Brick, Stucco, Concrete and Stone Painting

This type of surface is painted for protection as well as for decoration. If unpainted, these porous materials absorb moisture, which may cause deterioration of the building materials as well as interior dampness.

Modern architecture points to painted brick especially for some of its most pleasing effects on new homes. The brick utilized may be either new brick or old, reclaimed brick . . . but it is usually painted in light colors with contrasting stylized trim. Older brick homes and buildings, too, some of then standing for many years are being painted in ever-increasing numbers, not only to help protect them but to increase materially their rental and sale value. Owners of commercial buildings in particular are turning to white paint as a means of greatly increasing the light value of otherwise dark interior courts.

## SURFACE PREPARATION

**Brick . . .** The mortar between the bricks should be at least six months old before painting, or else it should be neutralized by the treatment described below. The brick surface must be dry and clean before painting is begun. If the mortar between the bricks is crumbling, repoint the damaged places with concrete before painting. After the priming coat of paint, fill in minor defects with putty made of white lead-in-oil thickened with dry whiting.

**Concrete, Stucco, and Stone . . .** Concrete and stucco surfaces should be swept down to remove any loose particles. If the concrete is fresh, it must usually be neutralized, and this is also the case with fresh mortar between bricks. If the work is less than six months old, make the following test:

Make a solution of:

| | |
|---|---|
| Phenolphthalein | 1 dram |
| Grain alcohol | 4 ounces |
| Water | 1 quart |

Place a few drops of this solution on several pieces of the concrete or stucco. If the surface turns red, it is alkaline and must be neutralized.

To neutralize, apply a wash coat made by dissolving two to four pounds of zinc sulphate crystals in a gallon of water, and let this dry on the surface before painting.

In preparing to paint stone work, it is only necessary to clean the surface by sweeping or brushing.

## FORMULAS FOR PAINTING BRICK, STUCCO, CONCRETE AND STONE

### (Using Eagle Lead Reducing Oil)

| Materials | Priming Coat | Second and Third Coats (Flat) | Third Coat (Semi-Gloss) |
|---|---|---|---|
| Eagle Soft Paste White Lead | 100 lbs. | 100 lbs. | 100 lbs. |
| Eagle Lead Reducing Oil | 4 to 5 gals.* | 3 to 4 gals.* | 2 to 3 gals.* |
| Spar Varnish | | | ½ to 1 gal. |
| Gallons of Paint | 7 to 8 gals. | 6 to 7 gals. | 6 to 7 gals |
| Coverage (per gal.) | 200 sq. ft. | 400 sq. ft. | 400 sq. ft. |

*Use the minimum amount of Lead Reducing Oil when greatest opacity is desired.

If the surface has been previously painted and the paint is in good condition, no priming coat is necessary. If the surface has never been painted, it is always advisable to use three coats, but if two-coat work is necessary, be sure to mix the first coat in the proportion of 3 gallons of Lead Reducing Oil to 100 lbs. of Eagle White Lead.

### (Alternate Formulas)

| | Priming Coat | Second Coat | Third Coat (Flat) | Third Coat (Gloss) |
|---|---|---|---|---|
| Eagle Soft Paste White Lead.... | 100 lbs. | 100 lbs. | 100 lbs. | 100 lbs. |
| Boiled Linseed Oil | 3 gals. | ......... | ......... | ......... |
| Raw Linseed Oil . | ......... | 2 gals. | ......... | 3 gals. |
| Spar Varnish..... | 2 gals. | ......... | ¾ gals. | ......... |
| Gum Turpentine | 1¼ gals. | 1¼ gals. | 1¼ gals. | ......... |
| Liquid Drier..... | ......... | 1 pint* | ½ pint | 1 pint* |
| Gallons of Paint.. | 9⅜ gals. | 6½ gals. | 5⅝ gals. | 6¼ gals. |
| Coverage (per gal.) | 200 sq. ft. | 400 sq. ft. | 400 sq. ft. | 600 sq. ft. |

*When boiled oil is used, reduce drier to ½ pint.
If Heavy Paste is used, add one quart gum turpentine to *all* formulas.

No priming coat will be necessary if the surface has been previously painted and this paint is in good condition.

## CONCRETE FLOORS

Before concrete floors are painted, they should be clean, dry, and free from all oil, grease and wax. Then apply Eagle White Lead tinted with one of the earth colors, such as umber, sienna, French yellow ochre or Venetian red; lampblack may also be used. These colors are not injured by any alkaline salts which may be present in the cement; however, the surface should be neutralized according to the method described on page 30 if the cement is very raw. Eagle White Lead may be blended with lamp black and Eagle Sublimed Blue Lead to obtain a pleasing slate gray paint. Concrete floors may be made harder and less absorbent by using a cement hardener before painting.

In using the following formulas for painting concrete floors, especial care should be taken to mix the varnish in thoroughly when all materials are no colder than 70° F. Always brush the paint out well, allowing about one week (at least four days) for each coat to dry.

## FORMULAS FOR PAINTING CONCRETE FLOORS

| Materials | Priming Coat | Second Coat | Third Coat |
|---|---|---|---|
| Eagle Soft Paste White Lead...... | 100 lbs. | 100 lbs. | 100 lbs. |
| Boiled Linseed Oil.. | 3 gals. | ½ gal. | ......... |
| Eagle Flatting Oil or Gum Turpentine. | 1¼ gals. | 2¼ gals. | 1¼ gals. |
| Floor Varnish...... | 2 gals. | ......... | 4 gals. |
| Gallons of Paint.... | 9⅜ gals. | 5⅞ gals. | 8⅜ gals. |
| Coverage (per gal.). | 500 sq. ft. | 600 sq. ft. | 400 sq. ft. |

## CHAPTER 5

# Painting Metal Surfaces

Every metal surface which is exposed to weather or moisture needs a coating of rust-inhibitive paint. Paint is commonly used for protective as well as decorative purposes on the structural steel work in buildings, on tanks of all kinds, on bridges and on boats. Many metal fittings on homes, such as gutters, downspouts, tin decks, metal sash, railings, and fences, also need the protection of a rust-inhibitive paint.

## PREPARATION OF METAL FOR PAINTING

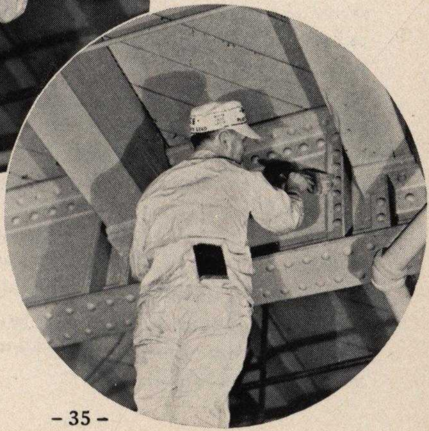
All rust, dirt or grease must be removed before painting. Rust may be removed by using steel wire brushes, chipping with a chisel where necessary. Dirt and grease may be removed with gasoline or benzine. If the metal is to be repainted, and the old paint adheres firmly to the surface, this old coat may be considered a perfectly sound foundation for the new paint. If the old paint does not adhere well, it must be completely removed by scraping, wire-brushing, burning with a torch, or sandpapering.

**New and Galvanized Iron . . .** New or galvanized iron presents a special problem because of its smooth surface, which offers no place for rust-preventive paint to get an anchorage. If the surface is weathered for about six months, it can usually be painted successfully. A quick and practical method of preparing galvanized iron for paint is to brush on a solution made by dissolving four ounces of copper acetate, copper chloride or copper sulphate in a gallon of water. This solution will roughen the surface slightly, depositing a light coating of copper, on which the paint can get a good anchorage. After allowing the surface to dry for about an hour, brush it and rinse it with water. When dry, the surface will be ready for painting.

**Copper** . . . Copper roof decks, cornices, rain gutters and leaders do not rust, but they do accumulate a coating of copper salts formed by weather action. Rain washes these salts down on to wood or other painted surfaces unless a paint is used over the copper. The stain does not harm a white lead film. (See page 72.) Usually the only preparation necessary before painting is dusting. For a more thorough cleaning use sandpaper, benzine, or toluol.

## EAGLE SUBLIMED BLUE LEAD

Eagle Sublimed Blue Lead-in-Oil is recommended for rust-proofing metal surfaces. It remains in suspension; it may be brushed or sprayed with ease; and it covers 600 to 800 square feet per gallon on surfaces of average smoothness.



*Above: A wire brush is used to brush fine rust particles and dirt from the surface before painting*

*Right: Eagle Sublimed Blue Lead makes an ideal rust-inhibitive paint for all metal surfaces*

Sublimed blue lead-in-oil, though low in cost, furnishes superior protection against atmospheric gases and moisture. Among commercial paints studied by the American Society for Testing Materials, sublimed blue lead was awarded the highest rating for rust-proofing efficiency.

**Broken Up In the Same Manner as White Lead . . .** Eagle Sublimed Blue Lead should be mixed and broken up the same way as white lead. (See Page 14). Mix it according to the following formulas. The paint produced will be a pleasing slate gray in color. It may be easily tinted to meet any requirement. Coats will dry within 24 hours.

## FORMULA FOR MIXING SUBLIMED BLUE LEAD

### First Coat (Shop Coat) and Second Coat

| | |
|---|---|
| Eagle Sublimed Blue Lead in Oil | 100 lbs. |
| Boiled Linseed Oil* | 2¾ gals. |
| Gum Turpentine or Naphtha | 1 qt. |
| Liquid Drier | 1 pt. |
| Gallons of Paint (Approx.) | 6¼ |
| Coverage (Sq. Ft. per Gallon) | 800 |

*If raw Linseed Oil is employed, use one quart of drier.

**Method of Application . . .** Paint must be evenly spread out and thoroughly brushed. An oval-shaped brush is recommended for this purpose, as it is more suitable for painting irregular surfaces, bolts, nuts, etc., and large surfaces.

Certain factors, such as the character of the surface to be painted, the temperature at the time of painting, the manner of application (brushed or sprayed) make it impossible for paint of any given consistency to be the proper one for all cases. In view of this fact, we recommend the use of turpentine or approved mineral spirits not in excess of 10%, to bring sublimed blue lead to the proper consistency for application under varied conditions.

For painting metal surfaces that may become too hot to warrant the use of linseed oil, substitute the highest grade winter pressed fish oil.

**Finishing Coats . . .** The formula for mixing Eagle Sublimed Blue Lead may be used for finishing coats as well as first and second coats. Colors in oil may be added if desired. White lead may also be used over sublimed blue lead, as a finishing coat of any color whatever. Where white lead is used for a finishing coat, many painters use a little white lead in the second coat of sublimed blue lead, to gray the color. In this way, the grayness of the sublimed blue lead is more easily hidden with the subsequent coats of white lead.

## EAGLE RED LEAD

When a rust-preventive job must be completed in a shorter time than usual, Eagle Red Lead in oil is recommended. In general, the same preliminary directions cited for blue lead also apply to red lead.

### FORMULA FOR MIXING RED LEAD

| | | |
|---|---|---|
| Eagle Red Lead in Oil | 100 | lbs. |
| Pure Raw Linseed Oil | 2 | gals. |
| Gum Turpentine or Naphtha | 1½ | pts. |
| Liquid Drier | 1½ | pts. |
| Gallons of Paint | 4⅝ | |
| Coverage (Sq. Ft. per Gallon) | 600 | |

CHAPTER 6

# Interior Wood Painting — Trim and Floors

Interior wood is painted in much the same manner as exterior wood. The method of mixing and general principles of application are identical. The same number of coats is used, three on new wood, two on wood which has previously been painted. However, interior formulas differ from exterior formulas because of the differences in finish and degree of exposure.

Eagle White Lead has often been called a versatile painting material. In part, this explains its adaptability as an *enamel undercoater.* A satisfactory and beautiful enamel job requires smooth, faultless foundation coats like those obtained from Eagle White Lead.

## FORMULAS FOR ENAMEL UNDERCOATERS

| | Priming Coat | Second Coat |
|---|---|---|
| Eagle Soft Paste White Lead.. | 100 lbs. | 100 lbs. |
| Pure Raw Linseed Oil......... | 3 gals. | |
| Eagle Flatting Oil or Gum Turpentine.................... | 2¼ gals. | |
| Eagle Lead Reducing Oil...... | | 3–4 gals. |
| Liquid Drier................. | 1 pt. | |
| Approximate amount of paint.. | 8½ gals. | 6⅛–7⅛ gals. |
| Coverage (Sq. ft. per gallon)... | 700 | 800 |

On old work omit primer and use second coat formula for necessary undercoaters.

## SURFACE PREPARATION

**New Wood . . .** New work should be sandpapered smooth and dusted clean before painting.

**Old Work . . .** Old enameled or varnished woodwork should be cleaned with a warm solution of ½ pound of soda in a gallon of water, and thoroughly washed afterward, with clean fresh water. If necessary, use No. ½ sandpaper to cut the gloss and remove brush marks.

Old work which is cracking or scaling should be taken off with a good paint and varnish remover; it should then be cleaned with turpentine or benzine and in repainting, the formulas for "new wood" should be used.

Wax on wood must be removed before painting by washing with warm turpentine. (Caution: Heat turpentine by placing the container in hot water, not over an open flame.) Sand thoroughly to remove every trace of wax, so that the paint will dry properly.

## ESTIMATING QUANTITY OF PAINT NEEDED FOR TRIM

The area of doors is found by multiplying height by width. White lead, mixed according to the formulas on this page,

## INTERIOR WOOD PAINTING FORMULAS

| Materials | OLD WORK (Two Coats) †† | | | NEW WORK (Three Coats) †† | | | |
|---|---|---|---|---|---|---|---|
| | First Coat | Second Coat Oil Gloss | Second Coat Flat | Priming Coat | Second Coat | Third Coat Oil Gloss | Third Coat Flat |
| **Eagle Soft Paste White Lead** | 100 pounds | 100 pounds | 100 pounds | 100 pounds | 100 pounds | 100 pounds | 100 pounds |
| **Pure Raw** Linseed Oil | 1 gal. | 3-3½ gals. | None | 3 gals. | 1½ gals. | 3-3½ gals. | None |
| Eagle **Flatting Oil or** Gum Turpentine* | 2¼ gals.** | None** | 2¼ gals.** | 2¼ gals.** | 1¼ gals.** | None** | 2¼ gals.** |
| **Pale or White** Enamel Varnish | None | None | 1 pint† | None | None | None | 1 pint† |
| Liquid **Drier** | 1 pint | 1 pint | None | 1 pint | 1 pint | 1 pint | None |
| **Approximate amount of paint** | 6½ gals. | 6¼-6¾ gals. | 5½ gals. | 8½ gals. | 6 gals. | 6¼-6¾ gals. | 5½ gals. |
| Coverage (Sq. ft. per gallon) | 800 | 800 | 800 | 700 | 800 | 800 | 800 |

††Mixing operations may be simplified by using formulas on page 46 for second and third coats instead of the above.

*Eagle **Flatting Oil** is recommended for its brushing and wearing qualities.

†If flatting oil is used, no varnish is necessary.

**When **Heavy Paste** is used, add from a pint to 1 quart of Eagle Flatting Oil or Gum Turpentine.

will cover about 800 square feet per gallon. (700 square feet for the primer.) Divide the area by the coverage per gallon. This will give the gallons of paint needed for one coat. For baseboards, molding, window frames, etc., figure one pint of paint for a hundred running feet.

## CORRECT BRUSHING

Use a three-inch flat brush with long soft bristles; a two inch brush is also handy for small trim and corners. The priming coat should be well brushed into new wood, and smoothed off. Apply the second and third coats rather freely and brush out well with the grain. Doors and panels should be crossbrushed, and then laid off with the grain.

Extra care taken in laying on a smooth coat saves time in sanding later. Some decorators even lay off with a soft badger or ox-hair brush. Sand each coat lightly and dust off. In applying the paint, be careful not to leave fat edges, puddles in corners or drops on ledges; they do not dry as rapidly as smooth paint, and may mar the finish.

## DECORATIVE FINISHES

Several interesting finishes, such as stippled, glazed, antique and old ivory, are described in the chapter on "Decorative Wall Finishes." Many of these finishes can be used on wood as well as on plaster or other wall material.

## PAINTING WOOD FLOORS

**Preparation of the Surface . . .** Old floors should be thoroughly scrubbed with a hot sal soda solution to clean them and remove any wax or grease. Fill the cracks with a good filler. Open-grain wood floors should always be filled with a paste filler. Close-grained hard woods, such as cherry and maple, require no filler.

If the floor is badly worn, and it is advisable to remove the old finish entirely, use a paint and varnish remover and scraper, wiping up any wax that is left with benzine. If the remover is of a strong alkaline nature, rinse the floor with clean warm water containing about a pint of strong vinegar to the pail. The vinegar will neutralize any alkaline substances. After this treatment, rinse the surface with clear water.

## FORMULAS FOR PORCH AND DECK PAINTS

| Materials | Priming Coat | Second Coat | Third Coat |
|---|---|---|---|
| Eagle Soft Paste White Lead | 100 lbs. | 100 lbs. | 100 lbs. |
| Raw Linseed Oil | 3 gals. | ½ gal. | ½ gal. |
| Eagle Flatting Oil or Gum Turpentine* | 2¼ gals. | 2¼ gals. | ¾ gals. |
| Floor Varnish | ........ | ........ | 1 gal. |
| Liquid Drier | 1 pt. | ½ pt. | ½ pt. |
| Gallons of Paint** | 8½ | 6 | 5½ |
| Coverage (sq. ft. per gal.) | 600 | 700 | 700 |

*If Heavy Paste is used increase figure by one quart.

**Paint made to this formula may be tinted to any color, or Eagle Sublimed Blue Lead, with the addition of ½ pt. of lamp black in oil, may be substituted for white lead to obtain a slate gray paint. Intermediate tints of gray may be obtained by blending white lead with sublimed blue lead.

For repainting porch or deck floors that have been properly cleaned and prepared, follow second and third coats in the above formula.

These formulas may be used on either interior floors or exterior porch floors. The paint must be well brushed on to spread out thin, and give uniform distribution of the paint. Each coat must be given ample time to dry. To avoid soft, sticky floors, do not apply a second or third coat until all tackiness has left the undercoat.

If desired, wax may be applied over white lead floor paint.

**Painting Underside of Porch Floors . . .** It is well to paint the underside of exterior porch floors if possible. This will prevent ground moisture from rising through the floor boards and injuring the top paint film. Use the same formula as for the finishing coat on ordinary exterior woodwork. (See Page 20).

## CHAPTER 7

# Preparation and Painting of Interior Walls

The expert interior painter must not only be equipped to mix any quantity of paint of any color for any surface, but he must know how to prepare all kinds of surfaces for painting. Defects in walls and ceilings must be repaired, and a perfect, durable surface made, or the paint film will not last very long.

### PREPARATION OF BRICK, CONCRETE AND METAL SURFACES

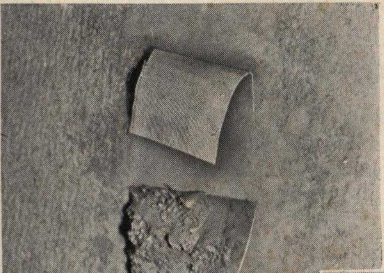
New brick, tile, and concrete walls usually require no preparation except brushing down to remove dust. Concrete, however, that is less than several months old may contain active alkaline properties which should be neutralized. (See Page 30 for method of neutralization). Black sheet iron and galvanized iron surfaces require thorough washing to remove grease and dirt. All rust must also be removed. (See Page 34 for method of preparing metal surfaces for painting.) The paint for interior metal work such as that used in ornamental ceilings may be mixed according to the formulas for the second and third coats on plaster. (See formulas on page 47.) Of course, the first coat on the metal should always be a rust-inhibitive paint, as described in Chapter 5.

### PREPARATION OF NEW WALLBOARD AND PLASTERBOARD

In the newer methods of installing wallboard, the joints are often left to show up in a decorative pattern, or else they are covered with a narrow wood moulding. If the wallboard is installed in the old way, however, the painter will have to fill in the joints with putty. Let the filling extend beyond the joint about an inch and a half on each side. While the putty is still wet, cover it with a strip of open-mesh canvas about three inches wide and pound the canvas down with a stippling brush. Then spread more putty on top of the fabric, press down with a broad glazing knife and scrape off the excess putty, knifing it down to a feather edge on both sides.

Let it dry and sandpaper it smooth. The open-mesh canvas permits putty to ooze through the holes, and thus reenforces the putty filling. One must avoid building up the putty filling to a greater thickness than the canvas, as that will make a bump that will cast a shadow.

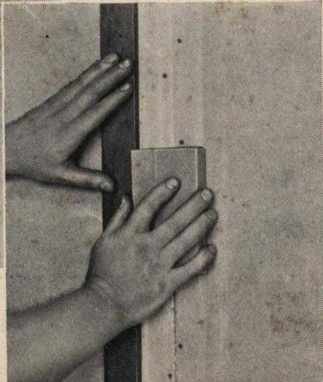
After preparing the joints, apply stippling paint made of Eagle White Lead, flatting oil, and dry whiting. Stipple the wet paint thoroughly and uniformly. (See Page 47 for method of stippling). A glaze finish, color stipple or plastic paint finish will make it easier to hide the joint. (See Chapter 9 for methods of making these finishes).



*Above: Method of concealing wallboard joint by putting on canvas strip*

*Unhidden joints detract much from the beauty of wallboard finishes. By properly filling and overpainting them, a skilled painter makes them invisible; the board is thus made to look like plaster*

*Below: Sandpapering wallboard joint smooth*



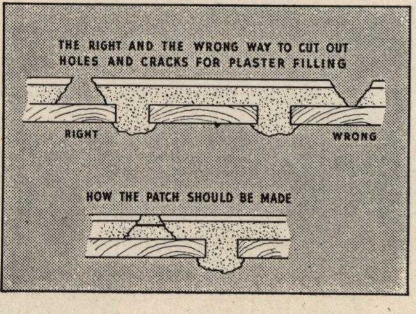
## PREPARATION OF PLASTER FOR PAINTING

**New Plaster . . .** New plaster should be allowed about six months to become thoroughly dried out, but if it is necessary to paint over very new plaster, it should first be neutralized. For this purpose, use a wash coat of two to four pounds of zinc sulphate to a gallon of water. This is allowed to dry before painting.

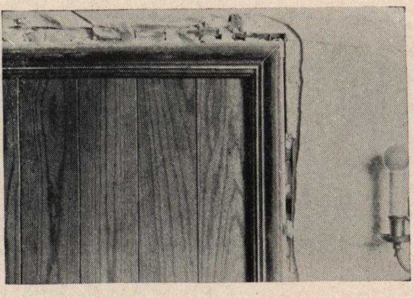
**Plaster Patching . . .** The plaster must be clean and smooth before painting. Holes and cracks must be filled with patching plaster. Clean out the cracks, making them large enough for a sufficient body of the patching plaster to take hold of the old plaster. Cut all cracks or holes into a wedge shape, as illustrated. Be sure to remove all dust and small particles before patching.

Soak the opening with water. Fill the crack with the patching material to within an eighth of an inch of the surface, and allow it to set awhile. Groove this plaster with a knife to form a key for the finishing coat. Spray it with water and allow it to stand overnight. Then spray it again and apply the finishing coat of the patching plaster.

**Material for Plaster Patching . . .** Wood-fiber patching plaster is probably the cheapest and most convenient for painters' use. It is sold by most paint dealers in one, five, fifteen and twenty-five pound bags. It is made ready for use by mixing


THE RIGHT AND THE WRONG WAY TO CUT OUT HOLES AND CRACKS FOR PLASTER FILLING
RIGHT
WRONG
HOW THE PATCH SHOULD BE MADE

*Cutting out the holes and cracks the right way gives the patch a secure anchorage in the plaster*



*Faulty construction should be repaired before patching is done or patch may fail shortly after it is completed*

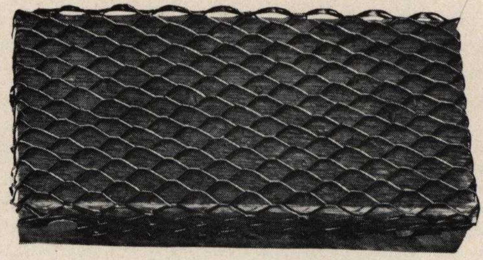
with water, and is workable for about a half-hour. The small amount of wood-fiber present in this plaster soaks up the water and swells, making the patch wedge itself into place. The wood-fiber does not usually interfere with the smoothing action of trowel or glazing knife, but if it does, on very smooth surfaces, the wood-fiber can easily be sifted out and the top or finishing coat of plaster made from the sifted material.

**Matching a Sanded Plaster Finish . . .** If the old plaster has a sanded finish, the patch can be made to match it by texturing it with a brush or whisk broom, and putting a little pre-screened torpedo sand in the first white lead coat over the patch.

**Large Plastering Jobs . . .** Before beginning a decorating job where plaster work is necessary, the painter should determine whether the cracks and holes are purely local defects, or whether the whole body of plaster is loose around the defects. In case large areas are involved, he should advise the customer to employ a plasterer to make the repairs.

## REMOVING OLD CALCIMINE

Before painting, old calcimined surfaces should be thoroughly scrubbed with warm water to remove as much of the calcimine as possible. Then a coating of boiled linseed oil should be applied to the surface before painting.



*An easily-made tool for removing textured paint*

## OLD WALLPAPER

If there is but one layer of wallpaper over a wall, paint can sometimes be applied over it with satisfactory results, using the same paint formulas as for bare plaster. However, the best procedure is usually to remove the wallpaper entirely. If it is necessary to paint over wallpaper, be sure to remove it wherever it is loose, and repair faulty plaster work behind it. If the colors tend to bleed, apply shellac over the white lead priming coat.

## OLD PLASTIC PAINT TEXTURES

Unless old plastic paint has lost its adhesion to the surface, it should not be completely removed because of the high labor cost. The color can be changed by painting it flat with Eagle White Lead and flatting oil, to a soft tint or glaze color. The old texture itself can be changed by smoothing or cutting it down. A tool can be made for this purpose by nailing a piece of expanded metal lath over a wood block, as shown in the photograph. This tool cuts off the high points when it is pushed over the old texture. A power disk sander may also be used for this purpose.

## OLD PAINTED AND ENAMELED WALLS

Any grease or dirt should be removed by washing with a warm sal soda solution, and then with clean water. Cracking and scaling paint on plaster walls must be removed by scraping, or with a paint remover. Then, after rinsing with water and drying, the surface would be painted as new plaster.

A solution of one pound of sal soda in a pail of water, followed by a water rinse, will clean and cut the gloss on old enameled or glossy paint surfaces. Without this preparation, the new paint may not adhere firmly to the surface.

In painting over old enamel or varnish, it is well to use a little enamel or varnish in the first coat. This gives greater adhesion.

## FORMULAS FOR PAINTING NEW PLASTER OR WALLBOARD

| Materials | Priming Coat | Second Coat | Third Coat (Flat) | Third Coat (Semi-Gloss) |
|---|---|---|---|---|
| Eagle Soft Paste White Lead | 100 lbs. | 100 lbs. | 100 lbs. | 100 lbs. |
| Boiled Linseed Oil......... | 3 gals. | ......... | ......... | ........... |
| Eagle Flatting Oil or Gum Turpentine............. | 1¼ gals. | ......... | ......... | ........... |
| Floor Varnish............. | 2 gals. | ......... | ......... | ½ to 1 gal. |
| Eagle Lead Reducing Oil.. | ......... | 3 to 4 gals. | 3 to 4 gals. | 2 to 3 gals. |
| Gallons of Paint........... | 9⅜ | 6⅛ to 7⅛ | 6⅛ to 7⅛ | 6⅛ to 7⅛ |
| Coverage (sq. ft. per gal.)... | 800 | 800 | 800 | 800 |

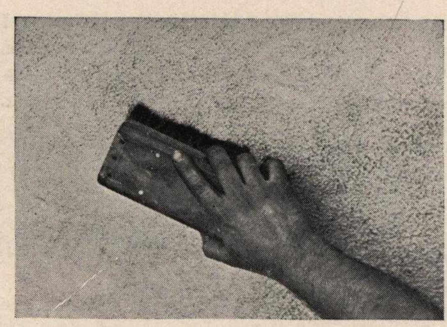
If the plaster has been previously painted, no priming coat is necessary. If Eagle Lead Reducing Oil is not available, follow formula on Page 39 for old work or for new work as the case may be.

## METHOD OF BRUSHING

All flat paints should be applied in semi-circular, short strokes in criss-cross fashion, in contrast to the long strokes used in exterior work. Each stretch of paint must stay wet until the painter can get back to it with the next stretch. Give the paint a chance to level off by flowing. Too much brushing stops the flow and makes flashes and laps.

## STIPPLING PAINT

A stippled effect in white lead paint is produced by pounding the wet paint with a wall stippling brush. The bristles of the brush make a fine pattern or texture which catches light rays, but does not reflect light like gloss paint. Per-



*The bristles of the brush make a fine pattern or texture which catches light rays, but does not reflect light like gloss paint.*

fect stippling is necessary for first class color glazing (See Page 61), but the stippled finish alone is beautiful in pastel colors.

**Coloring Paint for Stippling . . .** In stippling, each coat should be a little lighter in color than the previous one, the primer being darkest, the finishing coat lightest. This method eliminates the danger of skipping spots.

**Mixing Stippling Paint . . .** Stippling paint should be mixed a little thicker than paint for a smooth finish. The amount of Eagle Flatting Oil may be regulated. Use 1½ to 2 gallons of Eagle Flatting Oil to 100 lbs. of Eagle White Lead, depending on the character of the stipple.

**Stippling Method . . .** Do not allow the brush to become overloaded with paint, as this will bring about a change of pattern. To remedy this, wash the brush in benzine, shake out well and dry with a cloth. Be sure that it is thoroughly dry because a wet brush will make flat blotches in the finish.

In stippling, one painter follows another, the first applying the paint in the usual way, the second stippling it. The time interval is about right if the stippling is started immediately after the first stretch has been painted. Do not stipple the entire wet surface of the first stretch, but hold back about three or four inches from the edge, leaving a margin of unstippled paint. Then the second stretch can be joined to the first without producing a rough joint.

## STARCH COATING

When wall and ceiling paint is dry, many painters coat it with starch or buttermilk to protect it from dust and smoke accumulations. This makes it easier to wash the walls, for the starch easily washes away and brings any dirt accumulation with it, leaving the paint fresh and clean. Another starch coat may then be applied.

Ordinary laundry starch is used for this purpose. Dissolve it in a little cold water, beating it up to a smooth paste. Pour on boiling water and stir until the starch becomes clear. Let it cool, then thin with warm water until it has the consistency of thick cream. Strain it, apply with a calcimining brush, and stipple. Paint coats should be quite flat if they are to be starched. Too much gloss causes the starch to run and form dark brown streaks. A glossy surface can be prepared for starching by wiping over it with a cloth dampened with denatured alcohol. A very small amount of alcohol is sometimes used in the starch to prevent crawling.

A still more satisfactory coating may be made by mixing equal parts of the starch paste, prepared as above, and buttermilk, which has been previously strained to remove any lumps of fat. The buttermilk prevents crawling and sagging.

## CHAPTER 8

# Coloring Paint and Paint Styling

All of the common tints and shades, except the very dark ones, may be produced by adding the necessary tinting colors in oil to white lead. The method for mixing the colors into the paint is described on page 14.

## PAINT STYLING

Paint styling is no mere fad or fancy of the decorators' art. It is the use of currently popular colors to accentuate the most pleasing architectural lines of any type of home. Color styling creates a smart, cheerful "personality" for that home, reflecting the happiness and contentment of the occupants . . . and gives that home an air of ease and spaciousness. The painting contractor must study the house as his first step before paint styling. If the house seems too high in proportion to its length, paint the roof a dark color. Dark roofs seem to sink lower to the ground. In the event the house has shutters, paint the shutters on the upper story the same color or tone as the roof. This creates the illusion of a lower roof line. Shutters on the lower floor can be painted the same color as the body of the house.

Dormers and chimneys require paint styling sometimes so that they will blend with rather than intrude upon the general exterior decorative scheme of the home. Doors, likewise, should be considered as an integral part of the exterior design. A dark, warm colored door on a light house, or a light, cool colored door on a dark house—are good rules to follow.

A few facts in connection with color styling are worth remembering:

Light colors always help to make things look larger, while dark colors help to make things look smaller.

Reds, oranges, yellows, yellow greens . . . the warm colors . . . seem to bring things closer. On the other hand, cool colors like blues, violets, blue greens, blue grays seem to move things away, making them seem more distant.

Interiors, too, are color styled to achieve remarkable effects in giving livability to rooms which previously lacked charm and distinction. The trend to paint styling offers the painter many rich opportunities for worthwhile jobs . . . jobs that will do credit to him and his craft. Using pure white lead paint and a fundamental knowledge of color values and of the primary rules of paint styling, any competent craftsman can capitalize on this popular movement for more colorful and beautiful exteriors and interiors.

## MATCHING COLORS

Success in matching color samples depends largely upon one's knowledge of tinting colors. If you can look at a sample and tell what colors were used in making that shade, a match is easily made.

In mixing a batch of color to match a dry sample, bear in mind that the paint always looks darker in the pot than it does on a surface; another factor to be considered is that paint colors always change when the paint dries.

In matching one batch of paint to another, you can judge exactly when the match is reached by dipping the mixing paddle deep into one pot. Let it dry for a moment, then dip it just half as deep into the pot of paint you are trying to match. The line between the two paints shows immediately any difference in value.

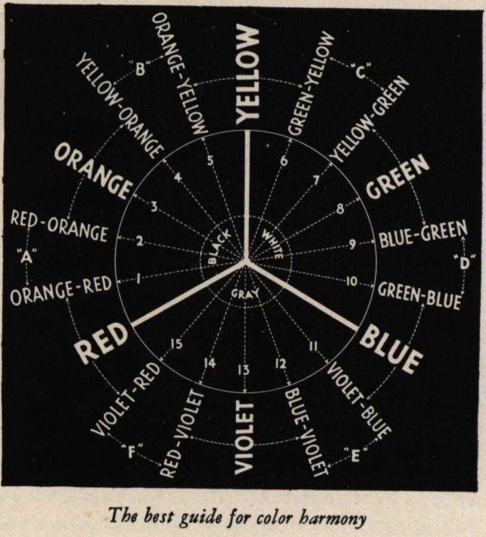
It is useless to try to match a gloss color to a flat color, for the light reflection on the gloss color will always make it look different from the flat color. When the two are matched as nearly as possible, if the samples are tilted back and forth in the light, the colors will appear to have changed entirely, and be nowhere near a match.

For the same reason, a color on a smooth surface cannot be matched to a color on a rough surface, because of the difference in light reflection. The color on the rough surface will appear darker because of the shadows cast by the bumps.

## GETTING COLOR EXPERIENCE

The painter who has had no experience in coloring should experiment in mixing colors with varying amounts of white lead. It is a good idea to mix the colors on a piece of glass, using a small spatula for the mixing. In this way, the painter can look through the glass and observe the varying degrees of intensity and opacity which are obtained with different color combinations. After mixing, he can pick up the colors with a brush and spread them on a surface if he desires. A piece of wallboard makes a good surface for experimenting in color painting.

After trying several combinations of color with white lead, the painter should try adding small quantities of black. After that, he will find that more interesting shades can be produced by mixing the complementary colors in varying proportions. The complementary colors are those which are opposite each other on the color circle.



*The best guide for color harmony*

*(See Page 54)*

The following colors will make a reliable palette for the painter:

RED . . . . . Venetian Red, English and American Vermilions, Indian Red, Tuscan Red, and permanent or burnt sienna.

YELLOW . . Chrome yellow (light, lemon, medium, orange or deep), raw sienna, yellow ochre, and French Ochre.

BLUE . . . . . Prussian, ultramarine, and cobalt. (Chinese blue is a form of Prussian blue.)

GREEN . . . Chrome green (light, medium, or dark).

BROWN . . . Vandyke, burnt umber and raw umber.

BLACK . . . . Lampblack, ivory drop, and lettering.

These colors are the foundation of all mixing and matching. When the painter is thoroughly acquainted with them, he can extend his palette to include the less common colors for the production of the rarer shades.

## USE OF THE COLOR CIRCLE

The largest lettering on the color circle denotes the primary colors, red, yellow, and blue. The next largest letters are the secondary colors and the smallest are the tertiary colors. For harmony, the colors opposite each other (complements) may be used. They agree well with each other, and are often used where some contrast in color is desired. A primary, a secondary, and the two tertiaries between them may also be used harmoniously in a color scheme. The above chart shows the trade names of the tints which come in each grouping.

## TINTS AND SHADES

• Classified as to the basic colors to which they are related in the Color-Circle Chart

| **Orange-Red** Group No. 1 | **Red-Orange** Group No. 2 | **Orange** Group No. 3 | **Yellow-Orange** Group No. 4 | **Orange-Yellow** Group No. 5 |
|---|---|---|---|---|
| Vermilion | Orange Chrome | Apricot | Amber | Buttercup |
| Scarlet | Brick | Tangerine | Buff | Cream |
| Salmon | Tile Red | Flesh | Pumpkin | Daffodil |
| Henna | Carrot | Peach | Fawn | Pongee |
| Flame | Burnt Orange | | Golden Brown | Gold |
| Venetian Red | Coral | | | Ivory |
| Shell Pink | Shrimp | | | |
| **Green-Yellow** Group No. 6 | **Yellow-Green** Group No. 7 | **Green** Group No. 8 | **Blue-Green** Group No. 9 | **Green-Blue** Group No. 10 |
| Lemon | Willow | Emerald | Peacock | Prussian |
| Canary | Sage | Grass | Jade | Copenhagen |
| Citron | Olive | Golf | Verdi | Dresden |
| Primrose | Apple | Myrtle | Lanvin | Peacock |
| Brass | Pea | Evergreen | Scarab | Turquoise |
| Gilt | Nile | Chartreuse | Chrome | Sky |
| **Violet-Blue** Group No. 11 | **Blue-Violet** Group No. 12 | **Violet** Group No. 13 | **Red-Violet** Group No. 14 | **Violet-Red** Group No. 15 |
| Ultramarine | Heliotrope | Iris | Magenta | Carmine |
| Azure | Heather | Dahlia | Mulberry | Cardinal |
| Royal | Lavender | Plum | Burgundy | Geranium |
| Sapphire | Wisteria | Lilac | Orchid | Crimson |
| Gentian | Amethyst | Prune | Fuchsia | Cameo |
| Cobalt | Mauve | Purple | Rose | Cerise |

## SELECTING AN INTERIOR COLOR SCHEME

FIRST: **Select Key Color Based On:**

A. *Use of room*—Very light tints for kitchens, bathrooms, bedrooms, and all other rooms designed to please women.

Use the brighter pastel tints for children's rooms such as nurseries, kindergartens and playrooms.

Moderately light tints are best for libraries, men's club rooms, offices, school rooms and restaurants.

B. *Size of room*—Use white and very light tints in small rooms. Use shades and moderately dark colors in large rooms.

C. *Light in room*—Well lighted rooms require only moderately light colors, and even the darker shades can be used. Poorly lighted rooms need very light or bright colors.

D. *Sun exposure*—For rooms with south windows, use cool colors such as blues, greens and neutral grays. In north rooms, use the warm colors—red, yellow, orange, brown, or warm gray.

E. *Personal Preference*—When there is a decided personal preference for a key color, it can usually be satisfied by adjusting other requirements. For example, if a cool color is preferred for a north room, balance can be struck by using warm colors for draperies, spreads, upholstery and other furnishings. Likewise, if a dark color is preferred for a small, poorly lighted room, increase the artificial light and use very light colored draperies and furnishings.

F. *Fixed room colors*—A key color may be limited by some fixed color in the room, such as draperies, rugs or furnishings. The simplest way to select the key color is to use some shade of the dominant color of the furnishings. The complement of the dominant color may also be used as a key color.

SECOND: **Select the Wall Color . . .** The key color is usually used for the walls. It should be a little lighter than the floor.

THIRD: **Select the Floor Color . . .** A rug, carpet or finished stain floor may decide this question. If the floor is to be painted, the wall color may be repeated in a darker tone.

FOURTH: **Select the Trim Color . . .** Trim with the same color as the walls or in a different shade of the same color is both good taste and good harmony. It is a mistake to have the trim in violent contrast to the walls. The room is outlined too sharply, and appears smaller.

FIFTH: **Select Ceiling Color . . .** Pure white and very light tints have been used too much for ceiling colors. It is better to use the same color as the walls in the ceiling shade. Ceiling colors that are darker than the walls are sometimes used for novel and modernistic effects.

## SELECTING AN EXTERIOR COLOR SCHEME

**Color Rules and Principles . . .** None of the very light tints actually clash when used together; there is so much white in them that the white serves as a harmonizing element. Of course, some combinations are more nearly in perfect harmony than others. When in doubt, mix a little of each color with the other, and that will make the combination harmonious.

**Personal Preference . . .** Some prefer yellow, some green, red or blue. There is no argument between points of personal taste, but there are some technical and practical limitations and also some limitations by popular or conventional ideas. Most of us do care about what others think; and so we heed the fact that it is not considered good taste or pleasing to use the strong bilious greenish yellows, reddish pink, vivid grass green, bluish red, purple, orchid and grayish dark browns for body colors. The very light yellow tints of warm hue, the light yellowish greens, warm grays, rich browns and tans are far more pleasing.

**Neighborhood Suitability . . .** Everyone likes pure white, but unless you decide to paint or wash the surface every year, it is not practical to paint pure white in districts where the air is laden with soot and dust. Ivory white, cream, tan, warm drab, ash gray, buff and light stone are better. In the average neighborhood, pure white and all the light tints are entirely satisfactory.

**Technical Limitations . . .** Colors are not equally serviceable when subjected to the direct rays of the sun and to other elements. The tints and shades gained by coloring Eagle White Lead with earth pigments are the most durable and color fast; such as the siennas and umbers, Venetian red, lampblack and yellow ochre. The most nearly color-fast greens are the chrome greens, and the best blues in this respect are Prussian and ultramarine. The blues and greens are chemically made colors and, while they are the most satisfactory to be had, are not entirely satisfactory when exposed directly to the sun. Medium and dark greens for outside are best mixed with high grade dark chrome green and raw umber; yellow greens are best gained with chrome green and raw sienna and raw umber. The best dark blue for window shutters is made with ultramarine blue. Tans and fairly bright yellows are most satisfactory when made of raw sienna. When very bright yellows are desired, use a little chrome yellow to brighten the raw sienna.

**Period Style Colors . . .** Homes in pure architectural styles are usually expected to be finished in their traditional colors, but exceptions can be made which are entirely satisfactory. The Colonial types, New England farm house style, Queen Anne and Southern Georgian, are usually done in white, but ivory, cream, very light gray, light green and very light yellow are all tastefully used. French Provincial types which are now quite popular call for white body, or light bluish gray or greenish gray body, with brown or green roofs. For the English cottage type of common brick and stucco, white, ivory, gray, green, stone and light drab are all correct and interesting as long as the tints are kept very light, just off the white.

**Proportions and Sizes . . .** Any house, large or small, seems larger when the body is white or a very light tint, and when the body and trim are done in one color. A trim color of much darker hue than the body contrasts strongly and defines the limits of the building so that the eye can more easily measure it. Consequently, trim colors, and especially dark trim colors, make a house appear smaller. The use of a trim color exactly the same hue as the body color but a shade or two darker or lighter, assures perfect harmony, and does not materially decrease the apparent size.

If the building has much vertical trim, such as porch columns, corner boards, and tall window casings, the use of a dark trim color on those structural members will make the house look taller; but if the body color is used on these vertical surfaces and the trim color is used only on the horizontal trim, the result will be a lower appearance for the house. Thus, by careful distribution of the trim color, a tall house can be made to appear lower; and in reverse, a low squatty house can be made to appear taller simply by using a dark color on the vertical trim.

A very dark color on the roof makes a house appear lower; so does the use of a dark color on the upper story.

**Modernizing Old Houses . . .** Today, in painting many of the older houses having an excess of fancy trim, much of this surface is painted out; that is, the body color is used on a greater portion of the trim. The old-fashioned trim does not stand out so much, and the house is thus modernized to a certain extent by the use of color effect alone.

## CHAPTER 9

# Decorative Wall Finishes

The skilled painter can create many interesting patterns for wall finishes with Eagle White Lead and Flatting Oil. In general, these effects are made in three different ways; by figuring the surface coat, by glazing, and by texturing.

### FIGURING THE SURFACE COAT—STIPPLED AND MOTTLED EFFECTS

The stippled and mottled effects are all made by applying a colored finishing coat over a ground of a different color; the finishing color is applied with any one of a great variety of tools. Hundreds of different patterns can be produced by using different methods of applying the last color.

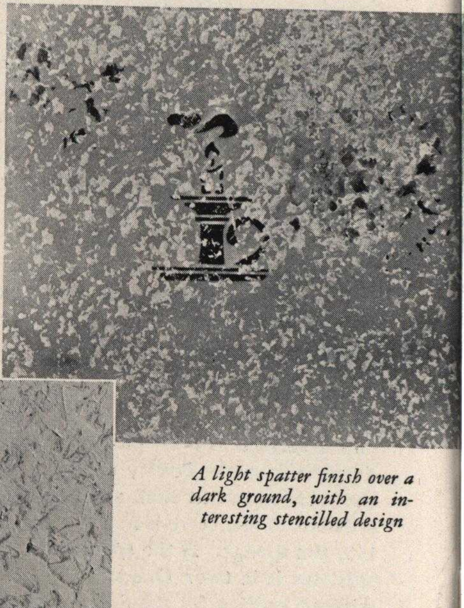
Both the ground color and the finishing color are mixed according to the regular formulas for interior paint. (Page 39.) For the finishing pattern, the tool is not dipped into the color as in brush painting; the color is spread on a board or piece of glass, picked up from there on the tool and then applied to the surface. Of course, the ground color is always allowed to dry before the pattern is applied.

A very interesting effect called the sponge mottle is produced by picking up the color on a sponge and tamping it on the surface. No set pattern should be followed, as this detracts from the beauty of the effect. It is best to soak the sponge in water first, and then squeeze out as much as possible. Then there is not so much penetration of the oil into the sponge. If the sponge does not have a fairly flat side, cut it in two. One stipple color may follow another without waiting for the first to dry, but the ground must be dry. An interesting mottle is created by tamping an ivory ground color with rose and light blue. The possibilities for using various colors are unlimited.

A large wad of newspaper used for tamping on the paint makes a pattern resembling frost on a window. The color is picked up in the same way as in sponge mottling, and the newspaper is used in the same manner as the sponge. The surface may be daubed with a crumpled wad, or the newspaper may be rolled into a cylindrical wad and rolled over the wall.

Many interesting pattern variations are made by using tissue paper, chamois skin, burlap, canvas, heavy muslin and other materials as tools for applying the paint.

The color pattern produced by this method may be reversed by a method called "scumbling." In scumbling, a finishing coat of any harmonious color is brushed entirely over the ground color, and then is figured while it is still wet. The wet paint is tamped or daubed with



*A light spatter finish over a dark ground, with an interesting stencilled design*

*A "scumbled" effect, made by rolling a wad of paper through the wet finishing coat, so that the ground color shows through* a sponge, newspaper wad, chamois skin, or any one of the many tools which are used in mottling.

## GLAZING

Glazing gives the effect of sunlight passing through stained glass windows. This method of decoration differs from mottling in that the paint used is transparent instead of opaque. A light colored ground, which is thoroughly dry, is covered with a glazing liquid. Then colors are applied and wiped out in cloud-like effects. Colors made especially for glazing may be used, or almost any of the common tinting colors in oil will serve the purpose. Of course, such colors as ochre, lampblack, and light or medium chrome yellow are not used because they are too opaque.

Eagle Flatting Oil makes an excellent glazing liquid because it has good flow and binds the colors well. It may also be used for thinning the oil colors to brushing consistency.

### FORMULA FOR GLAZING LIQUID

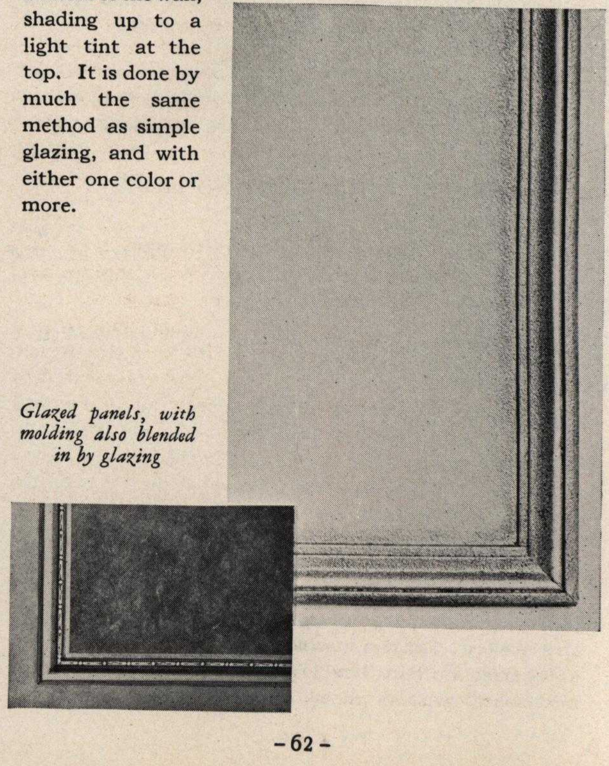
| | |
|---|---|
| 1 gal. | Eagle Flatting Oil |
| 1 lb. | Eagle Soft Paste White Lead |
| ½ lb. | Dry Whiting |
| 2 oz. | Linseed Oil |

The glazing liquid is brushed over as much wall surface as can be worked before it dries.

**Simple One-Color Glazing . . .** The glazing liquid is spread on the wall in a stretch about a yard wide, from ceiling to baseboard. Then, while the glazing liquid is still wet, the glazing color, which has been thinned to heavy brushing consistency with Eagle Flatting Oil, is applied in random spots. Next, the spots of color are spread out in all directions by using either a four-inch wall stippling brush or a wad of cheese-cloth. This shades the dark spots of color out into a cloud-like pattern to graduate the colors and avoid a spotty effect. Leave a margin of glazing liquid at the edge of the stretch, so that it will be easier to join the edge of the next stretch without showing a vertical line. Finish the first stretch of glazing by wiping with a cheese-cloth from top to bottom, twisting the wrist.

**Multi-Color Glazing . . .** This is done in the same way as one-color glazing, except that two or more colors are applied after the glazing liquid, instead of only one. A few spots of each color are made on the stretch and then blended together by wiping. For example, on an ivory ground, burnt umber, light chrome green and rose lake might be used for glazing.

**Graduated Glazing . . .** This type of glazing is sometimes called a "sunburst". The color is made very dark at the bottom of the wall, shading up to a light tint at the top. It is done by much the same method as simple glazing, and with either one color or more.



*Glazed panels, with molding also blended in by glazing*

Coat in one stretch about two yards wide with glazing liquid. Instead of placing the glazing color in spots, apply it in a band the width of your brush at the bottom of the wall, just above the baseboard. Place another band a few inches above the first, then a third band higher up, leaving more space between the bands as you go up the wall. Do not put any color above the center of the wall, as there will be enough color on the brush to produce a light tint. Use a stippling brush to distribute the color, then a piece of cheese-cloth to blend it from dark at the bottom to practically no color at the top of the wall.

**Streaked Glazing . . .** This type of glazing has vertical stripes of glazing color over the surface. Follow the method for simple one-color glazing, but blend out the clouds of color to a greater degree by brushing until the surface is uniformly covered. Then lay a cheese-cloth out flat and draw it down the surface from top to bottom. The pressure of your fingers on the cloth will wipe out light stripes. Stripes can also be made by wrapping a cloth over a whisk broom or steel grainer's comb, and drawing this tool over the surface.

**Antique Glazing . . .** Glazing will give an aged or antique appearance to newly painted surfaces. For example, a new pirate chest may be given a time and weather-worn appearance. Apply two or three coats of oil paint in different colors, blister the paint in places with a gasoline burner torch, glaze color with raw umber and then smut coat with rottenstone, mixed with glue size or with turpentine and flat varnish.

A common antique effect often used on newly painted wall panels is to coat them with a glaze color such as raw umber, let it set for a few minutes, then wipe off almost all of it with vertical strokes. Even though all of the glazing color is apparently removed, an old appearance is given to the walls.

**Old ivory** is a still more common antique finish. Doors or wall panels are flat painted and stippled in ivory white, then glazed with raw umber. The umber is wiped from the center of the panels so that it is shaded down to a fairly dark color on the corners and edges.

**Stippling As an Aid to Glazing . . .** Although many painters glaze over smooth surfaces, we recommend that surfaces be stippled according to the directions on page 47, if it is intended to glaze color the surface. Stippling gives the glaze a much more beautiful tone, for the light reflection produced by stippling gives the glaze different colors when viewed from different angles.

## TEXTURING PLASTIC WHITE LEAD PAINT

Subdued plastic finishes enable the painter to offer his customers something that is beautiful and different from the ordinary finish. Plastic paint can be easily used to produce interesting and unusual finishes. A plastic finish appears to be rough and thick, but it is really thin, and can usually be cleaned with ordinary wallpaper cleaner. Consequently, you can have a heavy-looking finish without the inconvenience and expense of using a great deal of paint.

**Mixing Plastic Paint . . .** It is impossible to give one formula for plastic paint that will be suitable for every purpose. However, the following formula can be used as a basis for most jobs.

## FORMULA FOR WHITE LEAD PLASTIC PAINT

| | |
|---|---|
| 100 lbs. | Eagle Heavy Paste White Lead |
| 15 lbs. | Bolted Whiting |
| 10 lbs. | Plaster of Paris |
| 1½ gals. | Eagle Flatting Oil* |

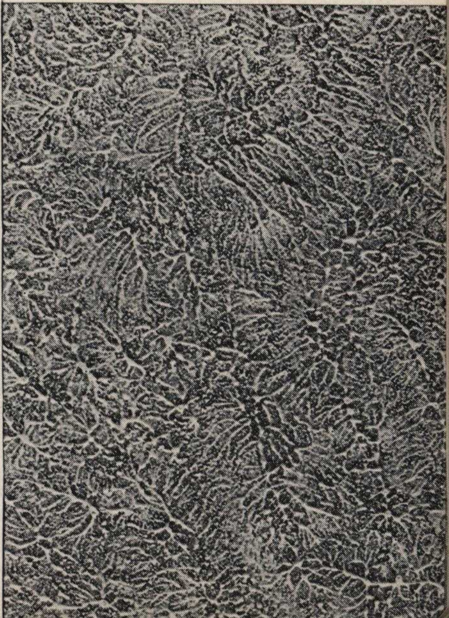
*When All-Purpose Paste is used, only 1¼ gallons of Flatting Oil is required.

Break the whiting and Plaster of Paris up in one can with a gallon of the Flatting Oil, and the white lead in another can with the remaining half-gallon of Flatting Oil. When both batches are thoroughly broken up, pour all the material together and stir until well mixed. Strain the plastic paint through screen wire, and it will be ready for use. Like all other paint, plastic white lead will work smoother and better after it has stood over night.

This formula makes about 5½ gallons of plastic paint, which will cover a little more than 200 square feet per gallon on average textures.

**Crinkled Palm Finish . . .** Brush on a small stretch of the plastic paint at a time. To make the pattern, press your hand into the paint, lift it, and at the same time let your hand twist or swirl a little. Repeat this several times, then begin the same operation in another place. Avoid forming the pattern in a series of straight lines by working from the center in all directions. The suction of the palm of your hand pulls the paint up into the pattern, part of which is made by the paint as it is squeezed between the fingers. A little practice will enable you to get a most interesting pattern by this hand method.

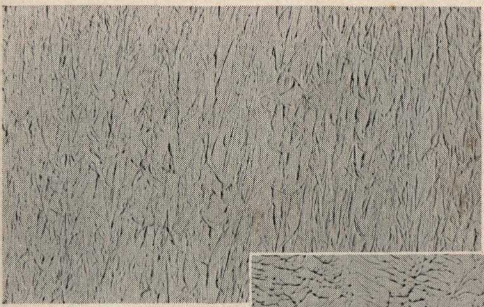
Fine patterns are produced in the same way by applying a thinner coat of the same paint. On the finer pattern, you will have to time your brushing and texturing carefully, because if you delay the texturing too long, the stiff pigment will not form the desired pattern.



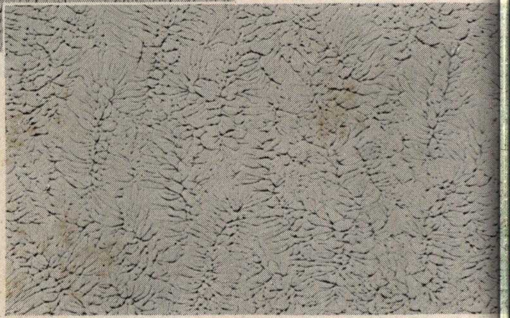
*A very pleasing and colorful variation of crinkled palm—the ground coat being tinted with raw sienna to an ivory white. While this coat was wet, colors were applied in patches*

**Mottled Color Palm Pattern . . .** An interesting way to get a fine color effect with this crinkled palm pattern, is to first produce the pattern in white. Take two, three or more colors, and mix them separately with a little plastic paint. Then while the white plastic on the surface is still wet, apply patches of each color, one at a time. After that, go over the surface with your hand and produce the crinkled palm pattern again. The colors will be mixed in a mottled pleasing manner. Mottling with a sponge also produces a beautiful combination of the colors.

**Flat Brush Stipple in Plastic Paint . . .** The flat brush stipple effect is obtained by applying a thick coat of the plastic paint. Then the paint is stippled by pounding it with the flat side of a calciming brush, at the same time drawing the hand down from top to bottom of the painted area. When dry, this pattern may be glazed if desired.



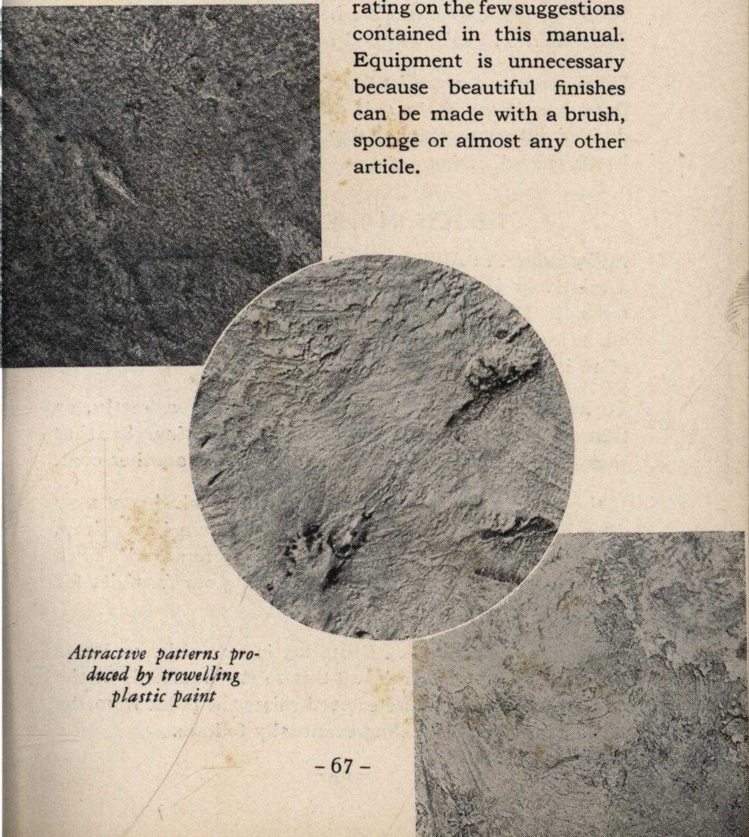
*An interesting pattern created by dragging a whisk broom through plastic white lead*



*Flat Brush Stipple. A subdued pattern that is beautiful in one color*

**Swirl and Weave Effects . . .** Fan swirl, basket weave and waving reed effects may all be produced in plastic paint by texturing with a whisk broom. Many very interesting effects can be obtained by using a sponge as a tool, and probably the most common tool for texturing is a trowel, either steel or wood. Any of the plastic finishes may be glaze-colored if desired.

The illustrations show only a few of the many finishes that can be produced with plastic lead paint. There are many variations to choose from, most of which the painter may work out for himself, elaborating on the few suggestions contained in this manual. Equipment is unnecessary because beautiful finishes can be made with a brush, sponge or almost any other article.



*Attractive patterns produced by trowelling plastic paint*

## CHAPTER 10

# Paint Defects

Every painter must learn to recognize the different kinds of paint failures and stains; he must know how to avoid them and what to do when they occur.

To avoid paint troubles, use Eagle White Lead and follow the mixing and application instructions in this manual; make sure that moisture cannot get behind the paint film through faulty construction. Sidings and flashings must be properly fitted, for moisture behind the paint will cause a paint failure in spite of good materials and workmanship.

The causes and remedies for the more common paint defects are discussed in this chapter. These defects are divided into two classes; first, defects in the paint film itself; second, stains.

## DEFECTS IN THE PAINT FILM

**Alligatoring** . . . Alligatoring is caused by the application of a relatively fast-drying coat over another coat which is too soft. This softness may be due to the use of too much oil, to insufficient drying time between coats, or to the use of an inferior oil which dries to a soft film.

To avoid alligatoring, formulate the paint correctly, so that each coat is harder than the coat following. See that each coat dries thoroughly before applying another coat.

If the alligatoring is not too severe, the cracked coat may often be removed by wire-brushing. If the cracks are deep, however, the old paint should be entirely removed. Then repaint the surface with white lead using our formulas for painting new wood.

**Blistering and Peeling** . . . Blistering is caused by moisture in the wood. The sun draws this to the underside of the paint film. The pressure exerted raises the paint from the surface in blisters. Peeling eventually follows.

White lead never blisters or peels if the wood is dry when the paint is applied and remains dry afterward.

When repainting, eliminate any sources of moisture, such as green wood, leaking pipes, wet basement or loose sidings. Make sure that the wood is dry. Then scrape off the blisters, sand down the rough edges, and touch up the bare spots with a priming coat before the finishing coats are applied over the entire surface.

**Blotching and Fading . . .** Blotching, fading and spotting show up in spots where the wood has absorbed all the oil from the paint. This is caused by not giving the wood enough coats of paint. Dark colors naturally appear to fade when the oil is absorbed. To avoid faded blemishes, use *three* coats of properly formulated white lead paint, with colors which are adapted to the purpose.

**Chalking . . .** A certain degree of chalking is a desirable feature in paint. Eagle White Lead paint wears down by a gradual chalking, thus leaving a perfectly smooth surface for repainting.

Rain, frost, fog, or other moisture during the drying of the paint may cause premature chalking and loss of gloss. Early chalking may also be caused by incorrect formulation or by not using enough paint.

**Checking . . .** Slight checking is not a serious defect, as it does not affect either the durability or the protective value of the paint. It appears in the form of tiny splits, dividing the paint into minute irregular areas. Checking affects only the top coat of the paint, and does not extend through to the undercoats. The flakes are small, and disappear as the paint gradually chalks. Before repainting, brush the surface to remove any loose particles.

To avoid excessive checking, be sure that each coat is formulated correctly, so that it will be harder than the succeeding coat, and allow each coat plenty of time to dry.

**Cracking and Scaling . . .** This common type of failure results from using paint which does not contract and expand with the wood when the temperature changes. The film breaks, and moisture gets into the cracks, causing the edges to curl up and the paint to scale off.

When repainting, all the old paint must be burned and scraped off. Otherwise, it will continue to scale away, and will carry the new paint with it. Apply three coats, according to the formulas for painting new wood.

White lead paint is elastic and will contract and expand with the wood. Therefore, it will not crack. However, if the wood is wet when painted, or if water enters the wood behind the paint film because of faulty construction, any paint is likely to peel. The construction work must be repaired if the new paint is expected to last.

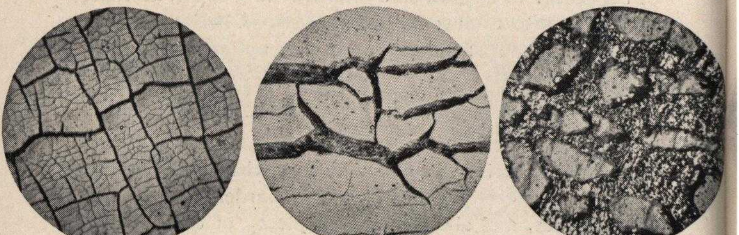
**Running and Sagging . . .** Running, sagging and creeping may occur when the paint contains too much oil and is flowed on too freely. Paint carefully formulated and skilfully applied will not show these defects.

Sometimes the old paint surface is too glossy, and this may cause running. The gloss can be cut by wiping the surface with a rag soaked with benzine.

Sand down the rough places before repainting.

**Tackiness and Slow Drying . . .** Tackiness and slow drying often result in more serious defects if not avoided Each

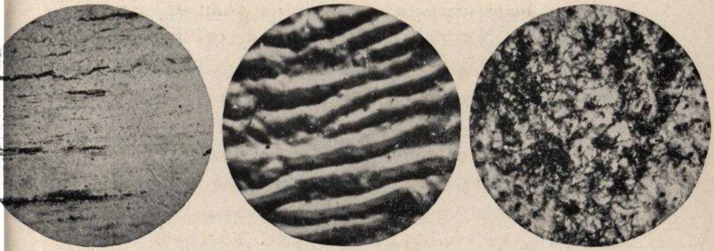
**Magnified 20 Diameters**



*Alligatoring and Checking*

*Heavy Cracking*

*Cracking and Peeling*



*Cracking and Scaling* *Wrinkling* *Mildew*

**Magnified 20 Diameters**

coat must dry thoroughly before the succeeding coat is applied, or checking and alligatoring may result. Tacky paint catches and holds dirt, soot and mildew; it is a fertile area for mildew growth.

Causes of slow drying: (a) Full oil coats on cold surfaces. (b) Full oil coats on sap-filled wood. (c) Application of second coat before first is dry. (d) Use of old linseed oil that has become fatty from exposure to the air. (e) Use of kerosene. (f) Some colors, such as dark green and lampblack, are naturally slow in drying.

For quick drying in cold weather, it is advisable to use a little less linseed oil, and make up the difference in volume with turpentine. Allow plenty of time for each coat to dry.

**Washing . . .** Streaks occur when paint contains inferior water-soluble pigments which wash out during storms. White lead is not water-soluble, and no water-soluble compounds can develop in it. Therefore washing never occurs when white lead paint is used, unless cheap materials are used in mixing it. Always use the best materials.

**Wrinkling . . .** When paint is applied too thick, the surface skin dries quickly and leaves an undried portion beneath it. When this dries later, it causes the surface skin to wrinkle. Even in poor drying weather, wrinkling will not occur if each coat is brushed out to a thin film.

In some cases, it is advisable to strip off all the old paint when wrinkling has occurred; but when the defect is not too serious, the wrinkled parts can be sanded down to a smooth surface before repainting.

## STAINS AND OTHER DISCOLORATIONS

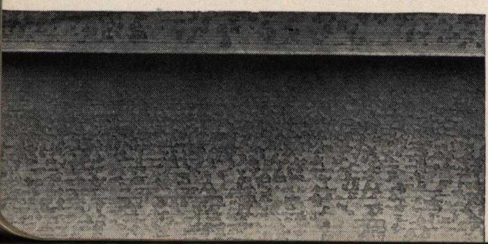
**Bleeding Over Knots . . .** This discoloration is caused by a substance in the knot which rises to the surface when it dissolves in the linseed oil of the paint. To stop bleeding of this type, coat the knot with rosin-free shellac after it has been primed with white lead.

**Copper Stains . . .** When moisture collects on copper screens, a copper salt results which sometimes washes down over the paint. An ugly stain is made which does not affect white lead paint in any way and soon wears or washes away. This stain has a chemical action on many pigments, however, and becomes permanent. The only way to avoid it is to coat the screens with oil, clear varnish or paint.

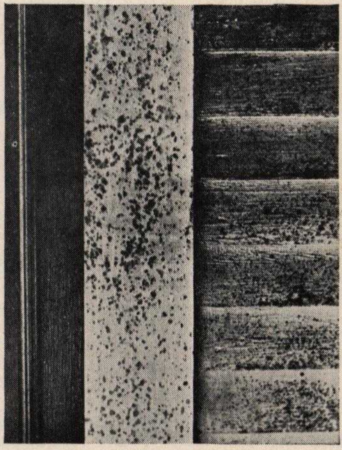
**Dirt and Soot Discolorations . . .** In some communities, dirt, smoke and vegetable pollen collect on paint very quickly and discolor it. It is advisable to use the darker colors in such neighborhoods. Paints containing too much linseed oil will form a tacky surface which catches all kinds of dirt; but if the formulas in this book are followed, a glossy, hard surface will result, from which such dirt may be easily washed away.

In exceptionally smoky communities, the paint may be made quicker drying by using less linseed oil, and thinning the paint with turpentine.

**Mildew . . .** Mildew is a dark-colored growth which often occurs on paint in damp, warm, shady places. It may be



*Disfiguration caused by snow falling on tacky paint* readily recognized by examination through a magnifying glass. (See photomicrograph on page 71.)



*Mildew Stains*

It is useless to paint over these stains because they continue to work up to the surface. The mildew plant must be killed. One of the best ways to do this is to wash the affected parts with a solution composed of one pound of trisodium phosphate or sodium bicarbonate in a gallon of water. Rinse the surface with clean water and allow it to dry two or three days before repainting.

To prevent the regrowth of the mildew, add one-half ounce of bichloride of mercury or ammoniated mercury to each gallon of paint.

In places where mildew is especially prevalent, it is wise to use less oil in the paint and more turpentine. This makes the paint dry more quickly and the surface is not so tacky while drying.

**Redwood and Cedar Discoloration . . .** Both these woods contain a black substance which is soluble in water. Moisture in the wood brings the substance out through the paint, or out to a point where it is visible through the paint film. In order to prevent this discoloration, these woods should be allowed to weather thoroughly before painting. Any faulty construction which might allow water to get behind the paint film should be corrected. When the defect occurs, it must be burned off before the surface is repainted.

## CHAPTER 11

# Small Paint Jobs

In many cases, the paint job is so small that it is not easy to follow paint formulas. The following simple instructions will usually result in a good, lasting paint film.

## EXTERIOR WORK

For outside paint, mix either Eagle Heavy Paste or Soft Paste White Lead with an equal volume of linseed oil. This will make a good gloss finishing paint. If Heavy Paste is used, add one-quarter pint each of turpentine and drier for each gallon of paint. If Soft Paste is used, the turpentine may be omitted.

For the first coat when repainting old work, the paint should consist of one part white lead to one part of vehicle by volume. The vehicle should be half linseed oil and half turpentine. Add one-quarter pint of drier for each gallon of paint. For priming coat on new wood, mix one part by volume of white lead with two parts linseed oil and turpentine, the oil and turpentine to be two parts oil to 1 part turpentine. If boiled linseed oil is used, no drier is required.

When repainting exteriors, it will usually be found that the paint on the south side will always be in poorest condition. The west will be a little better, and the east still better. The north side will be in good condition in most cases. The paint should be formulated to suit conditions on the south side. Then the south and west sides may be painted with that paint. For the east side, more turpentine will be added, and still more turpentine for the north side.

## INTERIOR WORK

For interior flat paint, mix equal volumes of white lead and Eagle Lead Reducing Oil, Eagle Flatting Oil or turpentine. This produces a suitable flat paint for finishing coats and it may also be used very satisfactorily for undercoats on wood work, and for all coats on plaster except the priming coat.

Before painting new plaster, always be sure that it is thoroughly "seasoned" or dried out. Then, for a priming coat, mix the paint the same as for an exterior priming coat, but use boiled oil instead of raw. Just before applying this primer, add a quart of good inside varnish to every gallon of paint. The paint for second and finishing coats may be mixed the same as for finishing interior wood.

## FOR ALL POROUS SURFACES

Eagle Lead Reducing Oil is especially recommended for use with Eagle White Lead on porous surfaces such as plaster, concrete, brick, stucco and stone. It may also be used on interior woodwork. It helps to seal the surface, and produces a washable finish, free of brush-marks and practically moisture-proof.

When Eagle Lead Reducing Oil is used, no other ingredients need be used with the white lead. For a priming coat, mix the white lead with about half again as much Reducing Oil, by volume. For the two finishing coats, if a flat finish is desired, use a half-and-half mixture of the oil and the white lead. This mixture should always be used for a second coat, but if a semi-gloss finishing coat is desired, use about one-third less Eagle Lead Reducing Oil than white lead by volume, making up the difference with spar varnish.

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# MEMORANDA

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## The Truth About White Lead Paint Costs!

The **truth** is—it costs you no more, and usually less, to use paint made from Eagle Pure White Lead than it does to use so-called "cheap" paints which come nowhere near pure white lead for durability. The chart below is a practical proof of this. In the column under your local white lead price, to the right of your oil price, is the approximate cost of a gallon of Eagle Pure White Lead primer and finishing paint, ready to apply. Compare this with other paint costs! You'll find it pays to insist on Eagle White Lead . . . **the choice of good craftsmen since 1843, a century ago.**

### COST PER GALLON OF PURE WHITE LEAD PAINT

| Linseed Oil per gallon | EAGLE WHITE LEAD COST PER 100 POUNDS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $11.00 | | $11.25 | | $11.50 | | $11.75 | | $12.00 | | $12.25 | | $12.50 | | $12.75 | | $13.00 | |
| | Primer | Finish | Primer | Finish | Primer | Finish | Primer | Finish | Primer | Finish | Primer | Finish | Primer | Finish | Primer | Finish | Primer | Finish |
| **$0.80** | 1.75 | **2.09** | 1.78 | **2.13** | 1.81 | **2.17** | 1.84 | **2.21** | 1.87 | **2.25** | 1.90 | **2.28** | 1.92 | **2.32** | 1.95 | **2.36** | 1.98 | **2.40** |
| **$0.90** | 1.80 | **2.14** | 1.83 | **2.18** | 1.85 | **2.22** | 1.88 | **2.26** | 1.91 | **2.30** | 1.94 | **2.32** | 1.97 | **2.37** | 1.99 | **2.41** | 2.02 | **2.45** |
| **$1.00** | 1.84 | **2.20** | 1.87 | **2.23** | 1.90 | **2.27** | 1.92 | **2.31** | 1.95 | **2.35** | 1.98 | **2.39** | 2.01 | **2.43** | 2.03 | **2.46** | 2.06 | **2.50** |
| **$1.10** | 1.88 | **2.25** | 1.91 | **2.28** | 1.94 | **2.32** | 1.97 | **2.36** | 2.00 | **2.40** | 2.02 | **2.44** | 2.05 | **2.47** | 2.08 | **2.51** | 2.11 | **2.55** |
| **$1.20** | 1.93 | **2.29** | 1.96 | **2.33** | 1.99 | **2.37** | 2.02 | **2.41** | 2.04 | **2.45** | 2.06 | **2.48** | 2.09 | **2.52** | 2.12 | **2.56** | 2.15 | **2.60** |
| **$1.30** | 1.97 | **2.34** | 2.00 | **2.38** | 2.03 | **2.42** | 2.06 | **2.46** | 2.09 | **2.50** | 2.11 | **2.53** | 2.14 | **2.57** | 2.17 | **2.61** | 2.20 | **2.65** |
| **$1.40** | 2.02 | **2.39** | 2.05 | **2.43** | 2.08 | **2.47** | 2.11 | **2.51** | 2.14 | **2.55** | 2.16 | **2.58** | 2.19 | **2.62** | 2.21 | **2.66** | 2.24 | **2.70** |

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